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## APPENDIX C

NATIONAL SCIENCE RESOURCES CENTER

**ELEMENTARY SCIENCE** 

INFORMATION DATABASE



## <u>NSZC</u>

National Science Resources Center National Academy of Sciences—Smithsonian Institution

Smithsonian Institution, Arts & Industries Building, Room 1201 Washington, DC 20560

DISTRIBUTION STATEMENT A

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## National Science Resources Center Elementary Science Resource Database

The National Science Resources Center has developed a resource collection and information database of elementary science teaching materials with support from the U.S. Department of Education. The resource materials in the collection include the following:

- Elementary science resource materials produced by federally-supported science curriculum development projects.
- Elementary science resource materials developed in recent years by science museums and school systems, including local adaptations of the major elementary science project materials.
- Elementary science materials developed in other countreies, including Great Britain, Australia, and some third-world countries.

The NSRC now has approximately 3,000 volumes in the NSRC elementary science collection, housed in the NSRC library in the Smithsonian Arts & Industries Building on the Mall. To obtain these materials, hundreds of commercial publishers were contacted for items that are currently in print. Exemplary science resource materials which were produced for local ro regional use and not available from commercial publishers were acquired for the NSRC elementary science resource collection by requesting them from the local school systems, science museums, university teaching centers, and other organizations participating in the NSRC Network. Original copies of the elementary science teaching units produced by federally-supported science curriculum projects that are out-of-print, such as the Elementary Science Study (ESS) materials, were donated to the NSRC by the members of the network. In addition, the NSRC purchased Science Helper K-8, an elementary science archival videodisk that contains out-of-print materials.

In addition to collecting elementary science teaching resources, the NSRC has developed an elementary science information database. The database includes brief annotations, as well as bibliographic information about the materials in the elementary science resource collection. The NSRC resource collection and information database of elementary science teaching materials are available for use by school systems and regional science education centers planning elementary science program improvement eefforts and by participants in NSRC workshops and conferences. As new resources become available, they will be added to the NSRC collection and database.

The elementary science resource collection and information database have been produced by the National Science Resources Center, established in 1985 as a joint undertaking of the National Academy of Sciences and the Smithsonian Institution. The NSRC's mission is to contribute to the improvement of science and mathematics teaching in the nation's schools by establishing a science and mathematics curriculum resources center and information database, developing and disseminating resource materials for science and mathematics teachers, and offering a program of outreach and leadership-development activities.



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NO 1
DE December 22, 1987
CA BIgd01
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Educational Services Incorporated), 1967.
SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC WORLD. St. Louis:
Webster Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC WORLD
AU Elementary Science Study (Educational Services Incorporated)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO St. Louis, MO
DP 1967
PG 146
IL b&w
BI yes
IS 07-019369x
AV out of print; new edition from Delta Education
PR $16.40 Delta, 11/87
AL 4,5,6
RL 4,5,6
DS biology
; cells
; lens
; magnification
: microorganisms
; microscopes
; microscopic life
; pond life
 ; slides
AN Children discover the microscopic world through use of water drop
lenses, hand lenses, and microscopes. They explore the concept of
magnification and become acquainted with various tools and techniques
for magnifying small objects. They learn to make and stain slides, and
examine onion cells and single-celled organisms. Emphasis is placed on
independent investigation, careful observation of similarities and
differences among specimens, and recording and discussing results.
Eleven sequential lessons, with student worksheet masters. (MDB)
TN 11 sessions, 35-45 minutes each
MT supplies from Delta Education
RE Brine Shrimp; Drops, Streams, and Containers; Microgardening; Port
Water
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NO 2
DE December 22, 1987
CA BIgd02
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1967, 1987.
TEACHER'S GUIDE FOR SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC
WORLD. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC
WORLD.
AU Elementary Science Study (Education Development Center)
PU Delta Education, Inc.
LO Nashua, NH
DP 1967, 1987
PG 120
IL b&w
BI no
IS 007019369x
LC QH206 b .E38 1967
AV in print
PR $16.40
AL 4,5,6
RL 4,5,6
DS biology
: cells
: lens
; magnification
: microorganisms
; microscopes
; microscopic life
; pond life
; slides
AN Children discover the microscopic world through use of water drop
lenses, hand lenses, and microscopes. They explore the concept of
magnification and become acquainted with various tools and techniques
for magnifying small objects. They learn to make and stain slides, and
examine onion cells and single-celled organisms. Emphasis is placed on
independent investigation, careful observation of similarities and
differences among specimens, and recording and discussing results.
Eleven sequential lessons with student worksheet masters.
TN 11 sessions, 35-45 minutes each
MT from Delta
RE Brine Shrimp; Drops, Streams, and Containers; Microgardening; Pond
Water
OR in library
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NO 16
DE January 20, 1988
SU General Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968.
TEACHER'S GUIDE FOR CHANGES. New York: Webster Division, McGraw Hill
Book Company.
SE Elementary Science Studies (ESS)
TI TEACHER'S GUIDE FOR CHANGES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1968
PG 26
IL b&w photos
BI no
IS 07-17494-x
AV out of print
AL 1,2,3,4
RL 1,2,3,4
DS bacteria
; biology
; change
; elementary science methods
; general science
; growth
: melting
: mold
: rust
: decay
AN CHANGES provides children with the opportunity to observe, discuss,
record, and predict natural changes brought about by both living and
nonliving processes. Children place common materials such as bread,
seeds, ice cubes, nails, rocks, candles, and oranges into separate
glass jars and leave them in a safe place. As time passes, children
compare their observations and attempt to determine what changes, if
any, have occurred, and why. They can investigate the effects of
moisture, light, temperature, or preservatives. They are encouraged to
apply their findings to changes occurring outside the classroom, for
example, in rusty bicycles, trash cans, or neighborhood ponds. (MDB)
TN 2 weeks, 15-20 minutes per day, plus 1 week 2-3 sessions, 45 minutes
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RE Microgardening, Mystery Powders, Small Things, Where is the Moon?,

each

MT locally available

OR in library

Ice Cubes, Kitchen Physics

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NO 17
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), Inc., 1969.
1985. TEACHER'S GUIDE FOR EGGS AND TADPOLES. Nashua, NH: Delta
Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR EGGS & TADPOLES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 22
IL b&w photos
BI no
IS 07-18478-x
AV out of print, new edition from Delta Education
PR guide $5.15, kit $86.70 from Delta Education January, 1988
AL K,1,2,3,4,5,6
RL K,1,2,3,4,5,6
DS amphibians
; animal behavior
; animal care
; animals
; biology
; development
; eggs
; elementary science methods
; life cycle
; pond life
; tadpoles
AN EGGS AND TADPOLES provides the opportunity for children to examine
frog eggs, to observe their hatching into tadpoles and, if scheduling
permits, their complete development into frogs. Children are
encouraged to generate questions about the life cycle, behavior and
ecology of this amphibian, to develop their own strategies for
observation and data collection in search of answers, and to discover
new questions. The guide contains detailed information on collecting
or purchasing eggs, on caring for the developing animal, and proper
techniques for release. (MDB)
TN 3-7 days, 15-45 minutes per day for tadpoles only
; 8-20 weeks, 2-3 sessions per week, 30-45 minutes each for full
MT locally available, or from commercial suppliers
RE Brine Shrimp, Butterflies, Earthworms, Small Things, Changes, Pond
Water
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NO 18
DE January 20, 1988
SU Physical Science
; Mathematics
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968.
TEACHER'S GUIDE FOR MIRROR CARDS. New York: Webster Division, McGraw
Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR MIRROR CARDS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1968
PG 44
IL b&w, photos and drawings
BI yes
IS 07-18417-x
AV out of print
AL K,1,2,3,4,5,6
RL K,1,2,3,4,5,6
DS attributes
; elementary science methods
; geometry
: mirrors
; optics
; physical science
; reflection
: shapes
; symmetry
; mathematics
AN The MIRROR CARDS unit offers direct experience in the mathematical
and physical concepts of bilateral symmetry. Children juxtapose small
mirrors and picture cards to experiment with reflection patterns.
Through investigating the effects of angle and distance, they learn in
the process what a mirror can and cannot do, or where in relation to a
design it must be placed in order to create a particular reflection.
The guide encourages informal experimentation among small groups of
children, and provides supplemental information on the mathematical
basis for the activities. (MDB)
TN informal, 15-20 minutes per session
MT no longer commercially available
```

RE Light and Shadow, Optics, Attribute Games and Problems, Mapping

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NO 19
DE January 20, 1988
SU Skill Development
: Mathematics
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1970, 1986.
PATTERN BLOCKS TEACHER'S GUIDE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI PATTERN BLOCKS TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1970, 1986
PG 38
IL b&w photos and drawings
BI no
IS 0-87504-027-6
AV Delta Education, Inc.
PR guide $5.35, kit $24.00, 44 activity cards $20.55 January, 1988
AL K,1,2,3,4,5,6
RL K,1,2,3,4,5,6
DS attributes
; elementary science methods
; geometry
; mathematics
; patterns
; shapes
; skill development
; symmetry
; tangrams
AN PATTERN BLOCKS may be used to encourage children in experimenting
with shapes and patterns. Using colored wooden blocks of six different
geometric shapes, children invent their own designs or attempt to solve
puzzles and problems, filling in outlines, investigating perimeter and
area, or experimenting with symmetry. Mirrors may also be added to
the activities. Informal, small group work or learning stations are
suggested. The guide contains detailed description of materials to
facilitate easy local production, and it also provides supplemental
information in some of the mathematical principles involved. (MDB)
TN Informal, 15-30 minutes per session
MT kit from Delta Education, or homemade
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NO 20
DE January 20, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), Inc., 1970.
TEACHER'S GUIDE FOR SAND. New York: Webster Division, McGraw Hill Book
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR SAND
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1970
PG 48
IL b&w photos and drawings
BI yes
IS 07-17683-x
AV out of print
AL K,1,2,3
RL K,1,2,3
DS earth science
; elementary science methods
; mathematics
; pendulums
; sand
; sifting
; sorting
: time
; weighing
AN In the SAND unit, children investigate the physical properties of
sand. They observe the color, shape and texture of different grades of
sand, they investigate how it behaves when wet or dry, and they compare
it with other materials such as dirt, sugar, or salt. Activities in
sifting and sorting, timing, weighing, and measuring are suggested,
with ideas for additional projects such as jewelry-making and creative
writing. The guide contains instructions for coloring sand, for making
sand paper and sand pendulums, and useful hints about classroom
management. (MDB)
TN up to 6 weeks, 3-5 hours per week
MT locally available
RE Mystery Powders, Pendulums, Primary Balancing
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NO 21
DE January 20, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (F'ucation Development Center), 1971, 1985.
SPINNING TABLES TEACHER'S GUIDE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI SPINNING TABLES TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1985
PG 18
IL b&w photos and drawings
BI no
AV Delta Education, Inc.
PR guide $9.20, kit $199.90
                              January, 1988
AL 1,2,3
RL 1,2,3
DS centrifugal force
; circular motion
; elementary science methods
; motion
: observation
; physical science
; prediction
; speed
AN SPINNING TABLES provides an opportunity to investigate circular
motion, to make predictions, and observe how various materials behave
when placed on a revolving surface. Chalkboard or pegboard disks are
set into motion by turning the crank on an adjacent drive wheel.
Children may attempt to predict how a chalkline drawn on
                                                            the disk
will appear when set into a spin, and whether it will change as the
disk's speed is changed. They can experiment with the paths of marbles
or cubes on the spinning table, or observe the effects of revolution on
closed containers of liquid or powder. The guide suggests small group
work, offering ideas for classroom management and related activities.
(MDB)
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RE Drops, Streams, and Containers; Pendulums; Primary Balancing; Optics

TN 6-8 weeks, 2 sessions per week, 45 minutes each

MT Kit from Delta Education, or homemade

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NO 22
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971.
TEACHER'S GUIDE FOR STARTING FROM SEEDS New York: Webster Division,
McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR STARTING FROM SEEDS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1971
PG 25
IL b&w photos
BI no
IS 07-017726-0
AV out of print
AL 1,2,3,4,5,6,7
RL 1,2,3,4,5,6
DS biology
; botany
; elementary science methods
: leaves
; plants
: roots
; soil
: life cycle
; flowers
AN In STARTING FROM SEEDS, children experiment with various types of
seeds, containers, and growth media to explore questions about how
plants develop. They investigate the effects of moisture or lack of
moisture, discover what happens when plants are grown in the dark, and
find ways to change the direction of plant growth. Ideas for further
experimentation include the effects of salt or temperature, the
presence of parasitic insects, the impact of making cuttings, and
attempts to grow plants from parts other than seeds. The unit
emphasizes independent inquiry and encourages students to develop their
own strategies for collecting, analyzing and sharing data. The guide
also contains helpful information about classroom gardening techniques
and problems. (MDB)
TN 3 sessions per week, 30-45 minutes each
MT locally available
RE Growing Seeds, The Life of Beans and Peas, Budding Twigs,
Microgardening
OR in library
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NO 23
  DE January 20, 1988
  SU Physical Science
  ; Skill Development
  TY Teacher's Guide
  CI Elementary Science Study (Education Development Center), Inc., 1970,
  1985. TEACHER'S GUIDE FOR STRUCTURES. Nashua, NH: Delta Education,
  SE Elementary Science Study (ESS)
  TI TEACHER'S GUIDE FOR STRUCTURES

    AU Elementary Science Study (Education Development Center)

  AF National Science Foundation
  PU Delta Education, Inc.
  LO Nashua, NH
  DP 1970, 1985
  PG 47
  IL b&w photos
  BI yes
  IS 07-017696-5
  AV out of print, new edition from Delta Education
  PR guide $10.80, kit $80.60 January 1988
  AL 2,3,4,5,6
  RL 2,3,4,5,6
  DS architecture
  ; bridges
  ; building
  : design
  ; elementary science methods
  ; mathematics
   ; physical science
   ; properties
  ; skill development
   ; structures
  AN In STRUCTURES, children explore the physical properties of materials
  and experiment with various design configurations. By working with
  such materials as clay, straws, paper, wood, dry spaghetti, or
  cardboard, children learn the possibilities for building towers,
  bridges, and other structures. They experiment with height, stability,
  and strength, designing strategies for testing their constructions.
  Opportunities for small group work as well as whole class activities
  are offered. The guide also provides ideas for additional building
  projects and suggestions for supplemental classroom tools and supplies.
  (MDB)
  TN 6-10 weeks, 2-3 sessions per week, 30-45 minutes each
  MT locally available, or kit from Delta Education
  RE GeoBlocks, Pattern Blocks, Primary Balancing, Senior Balancing, Clay
  Boats
  OR in library
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NO 24
DE January 20, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968.
WHERE IS THE MOON? TEACHER'S GUIDE. New York: Webster Division,
McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI WHERE IS THE MOON? TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1968
PG 55
IL b&w photos and drawings
IS 07-17447-x
AV out of print
AL 3,4,5,6,7
RL 3,4,5,6,7
DS astronomy
; change
 ; earth science
 ; elementary science methods
 ; moon
 : observation
 ; patterns
 ; planets
 ; sky
 ; stars
AN WHERE IS THE MOON? presents an informal introduction to
observational astronomy. Through the use of written "reminders",
teachers encourage their students to keep an eye on the after school
sky, observing the position and apprearance of the moon and prominent
planets such as Venus or Jupiter. Children record their observations in
journals and on charts and discuss them in class. Over a period of
time they to notice patterns of movement and change and begin to make
more accurate predictions. The guide contains a calendar with useful
information about finding and describing the moon, and hints on
preparation of reminders. A student guide entitled WHERE WAS THE MOON?
accompanies this unit. (MDB)
TN 12 weeks, 3-5 sessions per week, 5-45 minutes each
MT locally available
RE Changes, Daytime Astronomy, Light and Shadows, Mapping
OR in library
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NO 25
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR ANIMAL ACTIVITY - ACTIVITY WHEELS. New York:
Webster Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR ANIMAL ACTIVITY - ACTIVITY WHEELS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 15
IL b&w drawings
BI no
IS 07-17518-x
AV out of print
AL 4,5,6
RL 4,5,6
DS animal behavior
; animal care
; animals
; biology
; elementary science methods
; gerbils
; hamsters
: mice
: mouse
: rats
AN ANIMAL ACTIVITY introduces children to techniques for observing and
measuring the activity levels of small mammals such as mice, gerbils,
or hamsters. An exercise wheel in the animal's cage is linked to a
counter that monitors the animal's activity. Children observe and
record activity levels, investigating the effects of diet, age,
temperature, time of day, size of cage, and classroom noise levels.
The guide contains specifications for building an exercise wheel. A
student guide entitled EXPERIMENTS ON ANIMAL ACTIVITY accompanies the
unit. (BW &MDB)
TN Informal, 8 weeks
MT locally available, homemade, or from commercial supplier
RE Behavior of Mealworms, Earthworms, Animals in the Classroom, Tracks
OR in library
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NO 26
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1966, 1986.
TEACHER'S GUIDE FOR BEHAVIOR OF MEALWORMS. Nashua, NH: DElta
Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR BEHAVIOR OF MEALWORMS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1966, 1986
PG 57
IL b&w photos and drawings
BI yes
IS 07-019350-9
AV out of print, new edition from Delta Education
PR guide $7.50, kit $15.80, 35 activity cards $5.60, readers 6 for
$8.50 from Delta
AL 4,5,6,7,8
RL 4,5,6,7,8
DS animal behavior
; animal care
; animals
; biology
; elementary science methods
: entomology
; insects
; invertebrates
; life cycle
: mealworms
: observation
AN In BEHAVIOR OF MEALWORMS, the study of larval insects provides an
opportunity for children to develop skills in scientific inquiry.
Unstructured observation of mealworms opens the unit, leading students
to formulate questions about the biology and behavior of these
            In devising experiments to answer their questions, the
children collect data, keep records, and come to conclusions that they
can share with classmates. The guide contains extensive background
information on mealworms with instructions for their care, and
suggestions for further experimentation, evaluation, and classroom
management.
TN 15-30 sessions, 30-45 minutes each
MT Locally available, commercial suppliers, or kit from Delta
RE Animals in the Classroom, Brine Shrimp, Crayfish, Earthworms, Animal
Activity, Butterflies
OR in library
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NO 27
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1974, 1987.
TEACHER'S GUIDE FOR GASES AND "AIRS": NATURE OF AIR AND BEHAVIOR OF
GASES. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR GASES AND "AIRS": NATURE OF AIR AND BEHAVIOR OF
GASES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1974, 1987
PG 138
IL b&w photos and drawings
BI no
IS 0-07-018519-0
LC QC161 b .E38 1974
AV out of print, new edition from Delta Education
PR guide $16.40, 6-student kit $57.10, teacher's kit $134.65, 70
activity cards $9.70 from Delta, January 1988
AL 5,6,7,8
RL 5,6,7,8
DS air
; atmosphere
; change
; elementary science methods
; evaporation
; gas
; gases
: oxidation
; oxygen
; physical science
AN In GASES AND AIRS, children investigate the nature of air and how it
behaves under certain conditions. Suggested experiments demonstrate
the existence of air, and show how the gases in air can change and be
changed by interactions with materials such as candles, steel wool,
germinating seeds, and water. The activities contribute to content
knowledge, while fostering development of problem-solving skills, such
as collection and analysis of data, prediction, and conclusion. The
guide contains very detailed instructions for organizing the students'
investigations. There are also student worksheets keyed to specific
laboratory experiments.
                         (MDB)
TN 16-30 sessions, 45 minutes each
MT commercial suppliers, or kit from Delta
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RE Balloons and Gases, Kitchen Physics, Changes

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NO 28
DE January 21, 1988
SU General Science
; Mathematics
; Skill Development
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969, 1985.
TEACHER'S GUIDE FOR GEO BLOCKS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR GEO BLOCKS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 26
IL b&w photos and drawings
BI no
IS 07-017524-x
AV out of print, new edition from Delta Education
PR guide $4.50, kit $80.00, 42 activity cards $20.55 from Delta
January 1988
AL K,1,2,3,4,5,6
RL K, 1, 2, 3, 4
DS attributes
; elementary science methods
; geometry
; mathematics
; shapes
; skill development
: surface area
; symmetry
; volume
AN GEOBLOCKS is a unit that enables young children to become familiar
with surface area and volume relationships. As children create designs
and constructions with the blocks, either in free play or during more
directed activity, they learn to recognize geometric shapes, and to see
how the shapes relate to one another. The guide contains complete
details as to the number and dimensions of blocks appropriate for the
activities.
             (MDB)
TN informal
MT homemade, locally available, or kit from Delta
RE Mirror cards; Pattern Blocks; Mapping; Structures; Attributes, Games
and Problems
OR in library
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NO 29
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1963, 1986.
GROWING SEEDS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI GROWING SEEDS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1963, 1986
PG 14
IL b&w photos
BI no
AV out of print, new edition from Delta Education
PR guide $5.80, kit $26.50, 28 activity cards $3.65, Readers 6@ $8.50
from Delta
             January 1988
AL K, 1, 2, 3
RL K,1,2,3
DS biology
; botany
; elementary science methods
; flowers
; leaves
; life cycle
; plants
: roots
; soil
: classification
AN GROWING SEEDS enables children not only to observe the life cycles
of plants, but also to engage in such scientific processes as
classification, measurement, prediction, and experimentation.
begin by examining a collection of small items, and establishing
criteria for determining which of the objects are, in fact, seeds.
They then sort, plant, and observe growth of these "seeds", collecting
and sharing data with their classmates. The guide contains suggestions
for classroom management, as well as a list of seeds and non-seeds that
have been used effectively.
                             (MDB)
TN 3-8 weeks, 2-3 sessions per week, 30-45 minutes each
MT locally available, or kit from Delta
RE Budding Twigs, The Life of Beans and Peas, Starting From Seeds,
Microgardening
OR in library
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NO 30
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR THE LIFE OF BEANS AND PEAS. New York: Webster
Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR THE LIFE OF BEANS AND PEAS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 24
IL b&w photos
BI yes
IS 07-017525-x
LC SB327 b .E38 1969
AV out of print
AL 1,2,3,4
RL 1,2,3,4
DS biology
; botany
; elementary science methods
; flowers
; genetics
  leaves
: life cycle
; plants
: roots
 seeds
AN THE LIFE OF BEANS AND PEAS offers children the opportunity to
observe the life cycle of plants from seed to second generation.
Quick-growing, hardy legume seeds are examined, sprouted, planted, and
their growth monitored. Following the appearance of flowers and the
production of seed pods, the children harvest their crop, using some of
the seeds for eating, and others for further planting. Children can
use data from the first generation to make predictions about the
second, comparing the life cycle and growth rates. The guide suggests
grocery store sources for seeds of various kinds, and contains helpful
information concerning classroom plant care (MDB)
TN 12-24 weeks, 1-3 sessions per week, 30-45 minutes each
MT locally available
RE Growing Seeds, Starting From Seeds
OR in library
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NO 31
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1967, 1986.
TEACHER'S GUIDE FOR KITCHEN PHYSICS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR KITCHEN PHYSICS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1967, 1986
PG 103
IL b&w photos and drawings
BI yes
IS 07-0199364-9
LC 372.35 b E38t
AV out of print, new edition from Delta Education
PR guide $7.30, kit $45.90 from Delta,
AL 5,6,7,8
RL 5,6,7,8
DS absorption
; density
; elementary science methods
 fluid
; liquid
; physical science
; surface tension
; viscosity
; water
AN KITCHEN PHYSICS is an investigation of the physical properties of
liquids, using familiar household tools and materials to introduce the
scientific processes of observation, prediction, experimentation, data
collection, and analysis. Students compare the surface tensions of
various liquids, and conduct experiments on viscosity, density, and
absorption rates. A section on constructing and using balances enables
students to create equipment for some of their experiments. The guide
contains a detailed list of materials, student worksheets, and provides
helpful background information for each set of activities. (MDB)
TN 8-12 weeks, 2-3 sessions per week, 45 minutes each
MT locally available or kit from Delta
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RE Drops, Streams, and Containers; Colored Solutions; Sink or Float; Spinning Tables: Senior Balancing; Slips and Slides; Gases and "Airs"

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NO 32
DE January 21, 1988
SU Earth Science
; Skill Development
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971, 1985.
TEACHER'S GUIDE FOR MAPPING. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR MAPPING
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1985
PG 82
IL b&w photos and drawings
IS 07-017718-x
LC GA102.5 b .E38 1971
AV out of print, new edition form Delta Education
PR guide $19.30, kit $229.50 from Delta
                                          January 1988
AL 5,6,7
RL 5,6,7
DS distance
; earth science
; elementary science methods
: elevation
; geography
; mapping
; maps
; proportion
; scale
; topography
AN In MAPPING, children become familiar with the ways in which data can
be arranged to communicate location, direction, or sequence to others.
Activities include use of classroom materials for creating miniature
environments, and exploration of the school and its locale to answer
"life-sized" questions. As children explore problems of scale,
proportion, point of view, and distance, they learn to see the
relationships between the three dimensional world and its
two-dimensional representation on paper. The guide contains detailed
information on required materials and suggested supplementary items.
(MDB)
TN 5-6 weeks, 1-3 sessions per week, 45 minutes each
MT locally available, commercial suppliers, of kit form Delta
RE Daytime Astronomy, Geo Blocks, Light and Shadows, Match and Measure,
Mirror Cards, Pattern Blocks, Stream Tables, Tangrams
OR in library
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NO 33
DE January 21, 1988
SU General Science
: Skill Development
; Mathematics
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969, 1985,
MATCH AND MEASURE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI MATCH AND MEASURE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 57
IL b&w photos
BI yes
AV out of print, new edition form Delta Education
PR guide $17.45, kit $183.60
AL K, 1, 2, 3, 4
RL K,1,2
DS comparison
; elementary science methods
 mathematics
; measurement
; skill development
AN MATCH AND MEASURE suggests contexts across the curriculum in which
young children can match and compare objects, gradually approaching an
understanding of formal measurement. While engaged in classroom
activities such as building with blocks, growing plants, or listening
to stories, children are encouraged to find out how big, how far, how
small things are, and how they compare with other things, like lengths
of string, or width of hands. Activities for measuring area and volume
are suggested as well, and the guide contains a list of useful
classroom measuring materials. (MDB)
TN informal; or 4-8 weeks, 1-3 sessions per week, 30-45 minutes each
MT locally available, or kit form Delta
RE Geo Blocks, Growing Seeds, Light and Shadows, Pattern Blocks,
Primary Balancing, Sand, Structures
OR in library
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NO 34
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Devlopment Center), 1976, 1985.
MICROGARDENING, AN INTRODUCTION TO THE WORLD OF MOLD: TEACHER'S GUIDE.
Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI MICROGARDENING, AN INTRODUCTION TO THE WORLD OF MOLD: TEACHER'S
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1976, 1985
PG 136
IL b&w photos
BI yes
IS 07-018583-2
AV out of print, new edition from Delta Education
PR guide $24.25, kit $60.20 from Delta
AL 2,3,4,5,6,7
RL 4,5,6
DS bacteria
; biology
; culture (laboratory)
  development
 elementary science methods
; fungus
; lens
; life cycle
; microbiology
; microorganisms
; microscopes
; mold
; slides
AN MICROGARDENING introduces children to the nature of molds and how
they grow. Children learn about sterile procedures, and conduct
experiments with common materials to discover where molds come from,
influences on their growth rates, and how they can be used. The guide
contains substantial background information, as well as thorough
instructions for preparing and completing experiments. (MDB)
TN 15 sessions, 45 minutes each
MT commercial suppliers, or kit from Delta
RE Changes, Small Things
OR in library
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NO 25
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR ANIMAL ACTIVITY - ACTIVITY WHEELS. New York:
Webster Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR ANIMAL ACTIVITY - ACTIVITY WHEELS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 15
IL b&w drawings
BI no
IS 07-17518-x
AV out of print
AL 4,5,6
RL 4,5,6
DS animal behavior
 : animal care
 ; animals
 ; biology
 ; elementary science methods
 ; gerbils
 ; hamsters
 : mice
 : mouse
 : rats
AN ANIMAL ACTIVITY introduces children to techniques for observing and
measuring the activity levels of small mammals such as mice, gerbils,
or hamsters. An exercise wheel in the animal's cage is linked to a
counter that monitors the animal's activity. Children observe and
record activity levels, investigating the effects of diet, age,
temperature, time of day, size of cage, and classroom noise levels.
The guide contains specifications for building an exercise wheel.
student guide entitled EXPERIMENTS ON ANIMAL ACTIVITY accompanies the
unit.
       (BW &MDB)
TN Informal, 8 weeks
MT locally available, homemade, or from commercial supplier
RE Behavior of Mealworms, Earthworms, Animals in the Classroom, Tracks
OR in library
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NO 26
DE January 20, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1966, 1986.
TEACHER'S GUIDE FOR BEHAVIOR OF MEALWORMS. Nashua, NH: DElta
Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR BEHAVIOR OF MEALWORMS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1966, 1986
PG 57
IL b&w photos and drawings
BI yes
IS 07-019350-9
AV out of print, new edition from Delta Education
PR guide $7.50, kit $15.80, 35 activity cards $5.60, readers 6 for
$8.50 from Delta
AL 4,5,6,7,8
RL 4,5,6,7,8
DS animal behavior
; animal care
; animals
; biology
; elementary science methods
 ; entomology
 : insects
 ; invertebrates
; life cycle
: mealworms
 : observation
AN In BEHAVIOR OF MEALWORMS, the study of larval insects provides an
opportunity for children to develop skills in scientific inquiry.
Unstructured observation of mealworms opens the unit, leading students
to formulate questions about the biology and behavior of these
organisms. In devising experiments to answer their questions, the
children collect data, keep records, and come to conclusions that they
can share with classmates. The guide contains extensive background
information on mealworms with instructions for their care, and
suggestions for further experimentation, evaluation, and classroom
management.
TN 15-30 sessions, 30-45 minutes each
MT Locally available, commercial suppliers, or kit from Delta
RE Animals in the Classroom, Brine Shrimp, Crayfish, Earthworms, Animal
Activity, Butterflies
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NO 27
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1974, 1987.
TEACHER'S GUIDE FOR GASES AND "AIRS": NATURE OF AIR AND BEHAVIOR OF
GASES. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR GASES AND "AIRS": NATURE OF AIR AND BEHAVIOR OF
GASES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1974, 1987
PG 138
IL b&w photos and drawings
IS 0-07-018519-0
LC QC161 b .E38 1974
AV out of print, new edition from Delta Education
PR guide $16.40, 6-student kit $57.10, teacher's kit $134.65, 70
activity cards $9.70 from Delta, January 1988
AL 5,6,7,8
RL 5,6,7,8
DS air
; atmosphere
; change
; elementary science methods
; evaporation
; gas
; gases
: oxidation
; oxygen
; physical science
AN In GASES AND AIRS, children investigate the nature of air and how it
behaves under certain conditions. Suggested experiments demonstrate
the existence of air, and show how the gases in air can change and be
changed by interactions with materials such as candles, steel wool,
germinating seeds, and water. The activities contribute to content
knowledge, while fostering development of problem-solving skills, such
as collection and analysis of data, prediction, and conclusion. The
guide contains very detailed instructions for organizing the students'
investigations. There are also student worksheets keyed to specific
laboratory experiments.
TN 16-30 sessions, 45 minutes each
MT commercial suppliers, or kit from Delta
RE Balloons and Gases, Kitchen Physics, Changes
OR in library
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NO 28
 DE January 21, 1988
 SU General Science
 : Mathematics
 : Skill Development
 TY Teacher's Guide
 CI Elementary Science Study (Education Development Center), 1969, 1985.
 TEACHER'S GUIDE FOR GEO BLOCKS. Nashua, NH: Delta Education, Inc.
 SE Elementary Science Study (ESS)
 TI TEACHER'S GUIDE FOR GEO BLOCKS
AU Elementary Science Study (Education Development Center)
 AF National Science Foundation
 PU Delta Education, Inc.
 LO Nashua, NH
 DP 1969, 1985
 PG 26
 IL b&w photos and drawings
 BI no
 IS 07-017524-x
 AV out of print, new edition from Delta Education
 PR guide $4.50, kit $80.00, 42 activity cards $20.55 from Delta
 January 1988
 AL K,1,2,3,4,5,6
 RL K,1,2,3,4
 DS attributes
 ; elementary science methods
 ; geometry
 : mathematics
 ; shapes
 ; skill development
 ; surface area
 : symmetry
 : volume
 AN GEOBLOCKS is a unit that enables young children to become familiar
 with surface area and volume relationships. As children create designs
 and constructions with the blocks, either in free play or during more
 directed activity, they learn to recognize geometric shapes, and to see
 how the shapes relate to one another. The guide contains complete
 details as to the number and dimensions of blocks appropriate for the
 activities.
              (MDB)
 TN informal
 MT homemade, locally available, or kit from Delta
 RE Mirror cards; Pattern Blocks; Mapping; Structures; Attributes, Games
 and Problems
 OR in library
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NO 29
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1963, 1986.
GROWING SEEDS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI GROWING SEEDS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1963, 1986
PG 14
IL b&w photos
BI no
AV out of print, new edition from Delta Education
PR guide $5.80, kit $26.50, 28 activity cards $3.65, Readers 6@ $8.50
from Delta
             January 1988
AL K,1,2,3
RL K, 1, 2, 3
DS biology
; botany
; elementary science methods
: flowers
: leaves
: life cycle
; plants
: roots
: soil
; classification
AN GROWING SEEDS enables children not only to observe the life cycles
of plants, but also to engage in such scientific processes as
classification, measurement, prediction, and experimentation.
begin by examining a collection of small items, and establishing
criteria for determining which of the objects are, in fact, seeds.
They then sort, plant, and observe growth of these "seeds", collecting
and sharing data with their classmates. The guide contains suggestions
for classroom management, as well as a list of seeds and non-seeds that
have been used effectively. (MDB)
TN 3-8 weeks, 2-3 sessions per week, 30-45 minutes each
MT locally available, or kit from Delta
RE Budding Twigs, The Life of Beans and Peas, Starting From Seeds,
Microgardening
OR in library
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NO 30
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR THE LIFE OF BEANS AND PEAS. New York: Webster
Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR THE LIFE OF BEANS AND PEAS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 24
IL b&w photos
BI yes
IS 07-017525-x
LC SB327 b .E38 1969
AV out of print
AL 1,2,3,4
RL 1,2,3,4
DS biology
; botany
; elementary science methods
; flowers
; genetics
  leaves
; life cycle
; plants
; roots
: seeds
AN THE LIFE OF BEANS AND PEAS offers children the opportunity to
observe the life cycle of plants from seed to second generation.
Quick-growing, hardy legume seeds are examined, sprouted, planted, and
their growth monitored. Following the appearance of flowers and the
production of seed pods, the children harvest their crop, using some of
the seeds for eating, and others for further planting. Children can
use data from the first generation to make predictions about the
second, comparing the life cycle and growth rates. The guide suggests
grocery store sources for seeds of various kinds, and contains helpful
information concerning classroom plant care (MDB)
TN 12-24 weeks, 1-3 sessions per week, 30-45 minutes each
MT locally available
RE Growing Seeds, Starting From Seeds
OR in library
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NO 31
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1967, 1986.
TEACHER'S GUIDE FOR KITCHEN PHYSICS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR KITCHEN PHYSICS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1967, 1986
PG 103
IL b&w photos and drawings
BI yes
IS 07-0199364-9
LC 372.35 b E38t
AV out of print, new edition from Delta Education
PR guide $7.30, kit $45.90 from Delta,
AL 5,6,7,8
RL 5,6,7,8
DS absorption
; density
; elementary science methods
: fluid
: liquid
; physical science
; surface tension
; viscosity
: water
AN KITCHEN PHYSICS is an investigation of the physical properties of
liquids, using familiar household tools and materials to introduce the
scientific processes of observation, prediction, experimentation, data
collection, and analysis. Students compare the surface tensions of
various liquids, and conduct experiments on viscosity, density, and
absorption rates. A section on constructing and using balances enables
students to create equipment for some of their experiments. The guide
contains a detailed list of materials, student worksheets, and provides
helpful background information for each set of activities. (MDB)
TN 8-12 weeks, 2-3 sessions per week, 45 minutes each
MT locally available or kit from Delta
RE Drops, Streams, and Containers; Colored Solutions; Sink or Float;
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Spinning Tables: Senior Balancing; Slips and Slides; Gases and "Airs"

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NO 32
DE January 21, 1988
SU Earth Science
; Skill Development
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971, 1985.
TEACHER'S GUIDE FOR MAPPING. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR MAPPING
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1985
PG 82
IL b&w photos and drawings
IS 07-017718-x
LC GA102.5 b .E38 1971
AV out of print, new edition form Delta Education
PR guide $19.30, kit $229.50 from Delta
                                          January 1988
AL 5,6,7
RL 5,6,7
DS distance
: earth science
; elementary science methods
: elevation
; geography
; mapping
: maps
; proportion
: scale
; topography
AN In MAPPING, children become familiar with the ways in which data can
be arranged to communicate location, direction, or sequence to others.
Activities include use of classroom materials for creating miniature
environments, and exploration of the school and its locale to answer
"life-sized" questions. As children explore problems of scale,
proportion, point of view, and distance, they learn to see the
relationships between the three dimensional world and its
two-dimensional representation on paper. The guide contains detailed
information on required materials and suggested supplementary items.
(MDB)
TN 5-6 weeks, 1-3 sessions per week, 45 minutes each
MT locally available, commercial suppliers, of kit form Delta
RE Daytime Astronomy, Geo Blocks, Light and Shadows, Match and Measure,
Mirror Cards, Pattern Blocks, Stream Tables, Tangrams
OR in library
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NO 33
DE January 21, 1988
SU General Science
: Skill Development
; Mathematics
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969, 1985.
MATCH AND MEASURE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI MATCH AND MEASURE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 57
IL b&w photos
BI yes
AV out of print, new edition form Delta Education
PR guide $17.45, kit $183.60
AL K,1,2,3,4
RL K,1,2
DS comparison
; elementary science methods
: mathematics
: measurement
: skill development
AN MATCH AND MEASURE suggests contexts across the curriculum in which
young children can match and compare objects, gradually approaching an
understanding of formal measurement. While engaged in classroom
activities such as building with blocks, growing plants, or listening
to stories, children are encouraged to find out how big, how far, how
small things are, and how they compare with other things, like lengths
of string, or width of hands. Activities for measuring area and volume
are suggested as well, and the guide contains a list of useful
classroom measuring materials. (MDB)
TN informal; or 4-8 weeks, 1-3 sessions per week, 30-45 minutes each
MT locally available, or kit form Delta
RE Geo Blocks, Growing Seeds, Light and Shadows, Pattern Blocks,
Primary Balancing, Sand, Structures
OR in library
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NO 34
 DE January 21, 1988
 SU Biology
 TY Teacher's Guide
 CI Elementary Science Study (Education Devlopment Center), 1976, 1985.
 MICROGARDENING, AN INTRODUCTION TO THE WORLD OF MOLD: TEACHER'S GUIDE.
 Nashua, NH: Delta Education, Inc.
 SE Elementary Science Study (ESS)
 TI MICROGARDENING, AN INTRODUCTION TO THE WORLD OF MOLD: TEACHER'S
 GUIDE
AU Elementary Science Study (Education Development Center)
 AF National Science Foundation
 PU Delta Education, Inc.
 LO Nashua, NH
 DP 1976, 1985
 PG 136
 IL b&w photos
 BI yes
 IS 07-018583-2
 AV out of print, new edition from Delta Education
 PR guide $24.25, kit $60.20 from Delta
 AL 2,3,4,5,6,7
 RL 4,5,6
 DS bactería
 ; biology
 ; culture (laboratory)
 ; development
 ; elementary science methods
 : fungus
 : lens
 ; life cycle
 ; microbiology
 ; microorganisms
 : microscopes
 : mold
 ; slides
 AN MICROGARDENING introduces children to the nature of molds and how
 they grow. Children learn about sterile procedures, and conduct
 experiments with common materials to discover where molds come from,
 influences on their growth rates, and how they can be used. The guide
 contains substantial background information, as well as thorough
 instructions for preparing and completing experiments. (MDB)
 TN 15 sessions, 45 minutes each
 MT commercial suppliers, or kit from Delta
 RE Changes, Small Things
 OR in library
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NO 35 DE January 21, 1988 SU Physical Science TY Teacher's Guide CI Elementary Science Study (Education Development Center), 1968. THE MUSICAL INSTRUMENT RECIPE BOOK. Trial Teaching Edition. Newton, MA: Education Development Center. SE Elementary Science Study (ESS) TI THE MUSICAL INSTRUMENT RECIPE BOOK AU Elementary Science Study (Education Development Center) AF National Science Foundation PU Education Development Center LO Newton, MA **DP 1968** PG 10, 21 receipe cards IL b&w photos and drawings BI yes AV out of print RL K, 1, 2, 3, 4, 5 DS acoustics ; elementary science methods ; music ; musical instruments ; physical science ; sound : vibration AN Use of the MUSICAL INSTRUMENT RECIPE BOOK provides an opportunity to e2xplore the acoustic properties of various materials, and to combine these materials in the construction of sound-producing devices. The guide contains a list of useful materials, with instructions for building and playing twenty different instruments. TN 3-15 sessions, 45 minutes each MT locally available, homemade RE Whistles and Strings

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NO 36
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968, 1985.
OPTICS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI OPTICS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1968, 1985
PG 57
IL b&w photos and drawings
BI no
AV out of print, new edition form Delta Education
PR guide $7.15, kit $123.40 from Delta, January, 1988
AL 4,5,6
RL 4,5,6
DS color
; light
; optics
; elementary science methods
; eyes
; optical illusions
; physical science
: reflection
: refraction
: vision
AN In OPTICS, children analyze the properties of light, observing its
interaction with various transparent, opaque, or reflective objects.
They explore mirrors shadows and colored light, comparing their
observations to what they already know about reflections and color.
They experiment with refraction, trying different ways of bending
light. The guide contains detailed information on materials and their
use in the unit. (MDB)
TN 5-6 weeks, 2 sessions per week, 1 hour each
MT locally available, or kit from Delta
RE Mirror Cards, Light and Shadow, Spinning Tables
OR in library
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NO 37
DE January 21, 1988
SU Mathematics
: Skill Development
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1974, 1986.
TEACHER'S GUIDE FOR PEAS AND PARTICLES: LARGE NUMBERS AND ESTIMATIONS.
Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR PEAS AND PARTICLES: LARGE NUMBERS AND
ESTIMATIONS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1974, 1986
PG 42
IL b&w photos
BI yes
IS 07-018526-3
AV out of print, new edition from Delta Education
PR guide $12.20, kit $41.80, 58 activity cards $8.65 January, 1988
AL 4,5,6
RL 4,5,6
DS approximation
; area
; elementary science methods
: estimation
: mathematics
: measurement
: ratio
; skill development
; volume
; weight
AN PEAS AND PARTICLES is a unit concerned with large numbers,
approximation, and estimation. Using real-life situations, common
objects, or photographs, children learn various methods for estimating
area, volume, weight, quantity, and distance. They discover when
precision is necessary, and when approximations are appropriate. The
guide contains many photos for use in the activities, and includes some
entertaining examples from literature that illustrate the value of
estimation.
             (MDB)
TN 8-15 sessions, 45 minutes each
MT locally available, or kit from Delta
RE Geo Blocks, Match and Measure, Pattern Blocks, Mapping, Pendulums
OR in library
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NO 38
DE January 21, 1988
SU Physical Sciences
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969, 1985.
TEACHER'S GUIDE FOR PENDULUMS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR PENDULUMS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 33
IL b&w photos and drawings
BI yes
IS 07-017568-3
LC QA862.P4 b E38 1969
AV out of print, new edition from Delta Education
PR guide $11.20, kit $402.90 from Delta January, 1988
AL 4,5,6
RL 4,5,6
DS elementary science methods
; force
; gravity
; motion
; physical science
AN PENDULUMS offers an opportunity to investigate swinging things.
Children use fishline to suspend various objects from a crossbar, then
conduct experiments to compare the effects of the length of line, the
weight and shape of the suspended object, and the distance and rate of
       There are additional activities suggested for hand-held
pendulums, coupled swings, and salt pendulums, as well as hints for
constructing classroom equipment, (MDB)
TN 4-8 weeks, 2 sessions per week, 30 minutes each
MT locally available, or kit from Delta
OR in library
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NO 39
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR POND WATER. New York: Webster Division, McGraw
Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR POND WATER
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 36
IL b&w photos
BI yes
IS 07-017574-8
LC QH98 b .E38 1969
AV out of print
AL 1,2,3,4,5,6,7
RL 3,4,5,6
DS animal behavior
; animals
; aquariums
; biology
; elementary science methods
: lens
; microorganisms
; microscopes
: microscopic life
: observation
; pond life
 : snails
AN POND WATER introduces children to the wide variety of life in a
pond. By using hand lenses and microscopes, children discover that
pond water is teeming with tiny living creatures whose behavior can be
observed easily. The guide contains complete information on collecting
pond water, with suggestions for observations and experiments.
Accompanying activity cards provide detailed instructions for building
and maintaining an aquarium, for preparing slides, and for recognizing
and caring for pond organisms. (MDB)
TN 3-6 weeks, 3-5 sessions per week, 45 minutes each
MT locally available
RE Changes, Crayfish, Eggs and Tadpoles, Small Things, Brine Shrimp
OR in library
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NO 40
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR SLIPS AND SLIDES, Trial Teaching Edition. Newton,
MA: Education Development Center, Inc.
SE Elementary Science Study(ESS)
TI TEACHER'S GUIDE FOR SLIPS AND SLIDES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Education Development Center, Inc.
LO Newton, MA
DP 1969
PG 90
IL b&w photos and drawings
BI no
AV out of print
AL 4,5,6
RL 4,5,6
DS elementary science methods
; force
; forces
: friction
: motion
: mass
; physical science
; surface
AN SLIPS AND SLIDES is an investigation of forces and friction.
Children conduct experiments to discover how "slippery" various
surfaces are, and to determine how the weight and surface area of an
object affects the amount of force required to move it. Students are
encouraged to record results and compare their findings with those of
their classmates. The guide contains suggestions for many activities
and experiments, though instructions are not explicit. (MDB)
TN 15-30 sessions, 45 minutes each
MT locally available
RE Pendulums, Spinning Tables
OR in library
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NO 41
DE January 21, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1970.
TEACHER'S GUIDE FOR BUTTERFLIES. New York: Webster Division, McGraw
Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR BUTTERFLIES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1970
PG 42
IL b&w photos and drawings
BI yes
IS 07-017682-5
AV out of print
AL K,1,2,3,4,5
RL K,1,2,3,4,5
DS animals
; animal care
: biology
: butterflies
; butterfly
; chrysalis
; development
; elementary science methods
: insects
; invertebrates
; larva
; life cycle
; metamorphosis
; moths
; observation
; pupa
; caterpillars
AN BUTTERFLIES provides an opportunity for children to closely observe
the life cycle and characteristics of these familiar insects. While
witnessing the metamorphoses of the organisms from egg to adult, the
children learn how to handle and care for them. Students are
encouraged to generate their own questions about the butterflies, and
to seek answers through careful observation. The guide contains
complete instructions on acquiring and caring for butterflies, provides
information on common species and their habits, and offers advice on
construction of nets and cages. (MDB)
TN six weeks, 2-3 sessions per week, 30 minutes each (care & feeding 5
minutes daily)
MT locally available, commercial suppliers, or kit from Delta
Foundation
RE Behavior of Mealworms, Earthworms, Pond Water, Eggs and Tadpoles,
Crayfish, Changes, Brine Shrimp, Animals in the Classroom
OR in library
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NO 42
DE January 21, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971.
TEACHER'S GUIDE FOR DAYTIME ASTRONOMY. New York: Webster Division,
McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR DAYTIME ASTRONOMY
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1971
PG 74
IL b&w photos and drawings
BI yes
IS 07-017717-1
AV out of print
AL 5,6,7,8
RL 4,5,6,7,8
DS astronomy
; calendar
; earth science
; eclipse
; elementary science methods
: equinox
; geography
; globe
; light
: moon
; observation
; planets
; sextant
; shadows
; solar system
; solstice
: stars
: sun
; sundial
AN DAYTIME ASTRONOMY enables children to approach an understanding of
their universe through investigation of such familiar phenomena as
shadows, the sun's daily motion, and the phases of the moon. Children
keep records of the sun's movement by watching shadows overa period of
time, make moon observations, and through analysis and discussion of
their data, gradually discover that the changes they have observed fit
into predictable patterns. The guide contains a list of useful
materials, detailed advice for conducting indoor and outdoor classroom
activities, and instructions for making models. (MDB)
TN Through-year, 1-5 sessions per week, 15-45 minutes per session
MT locally available, homemade, or from commercial suppliers
RE light and shadows, Mirror Cards, Where is the Moon?, Mapping
OR in library
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NO 43
DE January 21, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Educational Development Center), 1976.
LIGHT AND SHADOWS: SPACE RELATIONSHIPS THROUGH THE PHENOMENA OF
SHADOWS. New York: Webster Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI LIGHT AND SHADOWS: SPACE RELATIONSHIPS THROUGH THE PHENOMENA OF
SHADOWS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1976
PG 29
IL b&w photos and drawings
BI yes
IS 07-018582-4
AV out of print
RL K,1,2,3
DS light
: observation
; shadows
: sun
; earth science
AN LIGHT AND SHADOWS provides an informal introduction to the
investigation of light, shadow, and spatial relationships. Through
photographs and sparse text, the guide illustrates ways of engaging
young children in such indoor and outdoor activities as tracing
shadows, catching each other's shadows, and following flashlight beams.
Because it contains no detailed instructions, the book functions more
as an inspiration than as a lesson plan. (MDB)
TN Informal, 15-45 minute sessions, through-year
MT locally available
RE Daytime Astronomy, GeoBlocks, Mirror Cards, Optics, Pattern Blocks,
OR in library
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NO 44
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968.
1985. WHISTLES AND STRINGS TEACHER'S GUIDE. Nashua, NH: Delta
Education. Inc.
SE Elementary Science Study (ESS)
TI WHISTLES AND STRINGS TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1968, 1985
PG 51
IL b&w photos
AV out of print, new edition from Delta Education
PR guide $6.65, kit $132.60, 57 activity cards $11.15, readers(6) $8.50
January, 1988
AL 3,4,5,6
RL 3,4,5,6
DS acoustics
; amplitude
; elementary science methods
; frequency
: music
: musical instruments
; physical science
; pitch
; sound
: vibration
AN WHISTLES AND STRINGS offers children the opportunity to investigate
the acoustic properties of common materials, and to construct and play
their own musical instruments. Students experiment with plastic
tubing, straws, string, paper cups, and other familiar materials,
manipulating them in various ways to discover amplitude, pitch, and
tone quality, and to discern the relationships between a material and
the sound it produces. The guide provides a materials list,
instructions for the activities, and examples of how some children have
worked with the unit.
                       (MDB)
TN 3-5 weeks, 2-3 sessions per week, 1 hour each
MT locally available, or kit from Delta
RE Musical Instrument Recipe Book
OR in library
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NO 45
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971, 1985.
TEACHER'S GUIDE FOR WATER FLOW. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR WATER FLOW
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1971, 1985
PG 58
IL b&w photos and drawings
BI no
IS 07-017733-3
AV out of print, new edition from Delta Education
PR guide $14.60, kit $140.75
AL 5,6,
RL 5,6
DS air pressure
: circulation
; elementary science methods
; physical science
; pipes
; plumbing
; pumps
; water
: water flow
: water level
; water pressure
AN In WATER FLOW, children observe the circulation of water in closed
systems. Children combine clear plastic tubing with other common
materials to construct pathways for water flow. They make predictions,
then use various tubing configurations to conduct experiments on rate
of flow, water levels, and effects of air pressure. Children are
encouraged to devise their own problems and to create strategies for
solving them. The guide contains many helpful suggestions for
activities and classroom management.
                                      (MDB)
TN 6-16 sessions, 45 minutes each
MT locally available, commercial suppliers, or kit from Delta
RE Batteries and Bulbs; Colored Solutions; Drops, Streams, and
Containers; Gases and "Airs"; Kitchen Physics, Sink or Float, Stream
Tables
OR in library
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NO 46
  DE January 21, 1988
  SU Chemistry
  TY Teacher's Guide
  CI Elementary Science Study (Education Development Center), 1971, 1985.
  TEACHER'S GUIDE FOR BALLOONS AND GASES. Nashua, NH: Delta Education,
  Inc.
  SE Elementary Science Study (ESS)
  TI TEACHER'S GUIDE FOR BALLOONS AND GASES
. AU Elementary Science Study (Education Development Center)
  AF National Science Foundation
  PU Delta Education, Inc.
  LO Nashua, NH
  DP 1971, 1985
  PG 42
  IL b&w photos and drawings
  BI no
  AV Delta Education
  PR guide $13.10, kit $229.50, consumable kit $127.50 January, 1988
  AL 5,6,7,8
  RL 5,6,7,8
  DS acids and bases
  ; chemistry
  ; elementary science methods
   ; gas
  ; gases
  ; indicators
  ; properties
   : reaction
   ; solutions
  AN BALLOONS AND GASES enables children to investigate the properties of
  various gases: to demonstrate that although they might be invisible,
  gases do exist, and can be identified and differentiated. Students
  begin by experimenting with acids, bases, and indicators, observing
  chemical reactions and learning ways of distinguishing similar fluids.
  They then generate gases and, by measuring weight and observing
  reactions and effects, begin to recognize the unique properties of
  each. The guide contains explicit safety recommendations, instructions
  for conducting lab experiments, and supplementary suggestions for
  preparing solutions and equipment. (MDB)
  TN 12-20 sessions, 1 hour each
  MT locally available, commercial suppliers, or kit from Delta
  RE Gases and "Airs", Mystery Powders, Senior Balancing, Kitchen Physics
  OR in library
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NO 47
  DE January 21, 1988
  SU Physical Science
  TY Teacher's Guide
  CI Elementary Science Study (Education Development Center), 1971, 1985.
  TEACHER'S GUIDE FOR HEATING AND COOLING. Nashua, NH: Delta Education.
  SE Elementary Science Study
  TI TEACHER'S GUIDE FOR HEATING AND COOLING
  AU Elementary Science Study (Education Development Center)
· AF National Science Foundation
  PU Delta Education, Inc.
  LO Nashua, NH
  DP 1971, 1985
  PG 58
  IL b&w photos and drawings
  BI no
  AV Delta Education
  PR guide $15.05, kit $183.60 January, 1988
  AL 5,6,7,8
  RL 6,7,8
  DS conduction
  ; cooling
  ; elementary science methods
  ; heating
    physical science
  AN HEATING AND COOLING enables children to experiment with a variety of
  materials, and to discover similarities and differences in their rates
  of heat conduction. Using an assortment of metal or glass rods; sheets
  of aluminum, lead, or copper; mesh screens, wire, and candles, children
  conduct tests to determine which materials heat fastest and which take
  longest to cool. They observe that heat goes into materials, that it
  can be transferred from hot areas to cool ones, and that heating an
  object can cause measurable expansion. The guide offers safety
  instructions, and brief background information is for each activity.
  (MDB)
  TN 20 sessions, 45 minutes each
  MT locally available, commercial suppliers, or kit from Delta
  RE Gases and "Airs", Ice Cubes, Batteries and Bulbs
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NO 48
DE January 21, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971, 1985.
GUIDE AND CARDS FOR STREAM TABLES. Nashua, NH: Delta Education Inc.
SE Elementary Science Study (ESS)
TI GUIDE AND CARDS FOR STREAM TABLES
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1971, 1985
PG 23, with 10 photo cards
IL b&w photos and drawings
BI no
AV Delta Education
PR guide $7.15, kit $80.60
AL 4,5,6,7,8,9
RL 4.5.6
DS earth science
; elementary science methods
: erosion
; geography
; sand
; sediment
; sedimentation
: soil
; streams
; water
; water currents
: water flow
AN With STREAM TABLES, children investigate the action and effects of
water circulating in currents, streams, and waves. A waterproof box
equipped with a pump and plastic tubing provides an environment to
which children add sand, gravel, and water. As the water courses
through the box, children can observe how it moves, and how its motion
affects the land. The guide contains suggestions for building
landscapes to erode, creating wind currents, and other activities.
There are detailed instructions for using materials and for classroom
management. A set of photo cards illustrates various uses of the
table, but the quality and composition of the pictures reduce their
effectiveness. (MDB)
TN 3-7 weeks, 1-3 sessions per week, 1 hour each
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MT locally available, commercial supplier, or kit from Delta

RE Mapping, Sand, Water Flow, Rocks and Charts

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NO 49
DE January 21, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968, 1985.
TEACHER'S GUIDE FOR BATTERIES AND BULBS. Nashua, NH: Delta Education,
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR BATTERIES AND BULBS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1968, 1985
PG 106
IL b&w photos and drawings
BI yes
IS 07-017491-1
AV out of print, new edition form Delta Education
PR guide $9.40, kit $198.90, 40 activity cards $19.15, Readers (6)
$8.50 from Delta
                    January, 1988
AL 4,5,6,7,8
RL 4,5,6
DS batteries
; battery
: bulbs
; circuits
: conductivity
; electricity
; electromagnets
; elementary science methods
; energy
; forces
; magnets
; physical science
: wires
AN BATTERIES AND BULBS introduces children to the study of electricity
and magnetism. Using common objects such as flashlights, batteries,
small bulbs, wires, and magnets, children are challenged to predict and
trace the path of electricity in a circuit, to find out what's inside a
battery, to make and use their own light bulbs and electromagnets. The
guide contains detailed lists of materials for each activity, as well
as complete instructions for the experiments and suggestions for
classroom discussions. (MDB)
TN 7-12 weeks, 2-3 sessions per week, 45 minutes each
MT locally available, or kit from Delta
RE water flow
OR in library
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NO 86
DE December 22, 1987
CA BIgd01
SU Biology
TY Teacher's Guide
CI Elementary Science Study, 1967. SMALL THINGS: AN INTRODUCTION TO
THE MICROSCOPIC WORLD. St. Louis: Webster Division, McGraw Hill Book
Company.
SE Elementary Science Study (ESS)
TI SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC WORLD
AU Elementary Science Study
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO St. Louis, MO
DP 1967
PG 146
IL b&w, drawings & photos
BI yes
IS 07-019369x
AV out of print; new edition from Delta Education
PR guide: $16.40 from Delta, 11/87
AL 4,5,6
RL 4,5,6
DS biology
: cells
; elementary science methods
: lens
; magnification
: microorganisms
; microscopes
; microscopic life
; pond life
: slides
AN Children discover the microscopic world through use of water drop
lenses, hand lenses, and microscopes. They explore the concept of
magnification and become acquainted with various tools and techniques
for magnifying small objects. They learn to make and stain slides,
                                                       Emphasis is
examining onion cells and single-celled organisms.
placed on independent investigation, on careful observation of
similarities and differences among specimens, and on recording and
discussing results. Eleven sequential lessons, with student worksheet
masters. (BW & MDB)
TN 11 sessions, 35-45 minutes each
MT supplies from Delta Education
RE Brine Shrimp; Drops, Streams and Containers; Microgardening; Optics;
Pond Water
OR in library
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NO 87
DE December 22, 1987
CA BIgd02
SU Biology
TY Teacher's Guide
CI Elementary Science Study, 1987. TEACHER'S GUIDE FOR SMALL THINGS:
AN INTRODUCTION TO THE MICROSCOPIC WORLD. Nashua, NH: Delta Education.
SE Elementary Science Study (ESS)
TI FEACHER'S GUIDE FOR SMALL THINGS: AN INTRODUCTION TO THE MICROSCOPIC
WOKILD.
AU Elementary Science Study
PU Delta Education, Inc.
LO Nashua, NH
DP 1987
PG 120
IL b&w, drawings & photos
BI no
AV in print
PR $16.40
AL 4,5,6
RL 4,5,6
DS biology
; cells
; elementary science methods
; magnification
; microorganisms
; microscopes
; microscopic life
; pond life
: slides
AN Children discover the microscopic world through use of water drop
lenses, hand lenses, and microscopes. They explore the concept of
magnification and become acquainted with various tools and techniques
for magnifying small objects. They learn to make and stain slides,
examining onion cells and single-celled organisms. Emphasis is placed
on independent investigation, on careful observation of similarities
and differences among specimens, and on recording and discussing
results. Eleven sequential lessons with student worksheet masters.
(BW & MDB)
TN 11 sessions, 35-45 minutes each
MT from Delta
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RE Brine Shrimp, Drops, Microgardening, Optics, Pond Water

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NO 88
DE December 23, 1987
CA BIgd
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1970.
ANIMALS IN THE CLASSROOM: A GUIDE FOR TEACHERS. New York: Webster
Division, McGraw Hill Book Company.
SE Elementary Science Study (ESS)
TI ANIMALS IN THE CLASSROOM: A GUIDE FOR TEACHERS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1970
PG 56
IL b&w, drawings and photos
BI yes
IS 07-017706-6
LC SF413 b .E38
AV out of print
PR n/a
AL 1,2,3
RL 1,2,3
DS animals
: animal care
; biology
; elementary science methods
: gerbils
: lizards
: mealworms
AN ANIMALS IN THE CLASSROOM encourages teachers to keep animals of all
kinds in the classroom and to use them in teaching language arts,
mathematics, and social studies, as well as in science and nature
study. The guide is divided into four sections. The first is an
account of a year with desert animals in a primary classroom. The
second section contains a checklist for care of a variety of animals.
The third and fourth sections describe methods that have worked
successfully in caring for gerbils and lizards. Some simple,
inexpensive cages are described for use with small animals. A resource
list is included, but due to the age of this edition, it is somewhat
outdated. (BW & MDB)
MT source list in guide
RE Animal Activity; Bones; Brine Shrimp; Butterflies; Crayfish; The
Curious Gerbils; Earthworms; Eggs and Tadpoles; How Barn Owls Hunt; How
a Moth Escapes From Its Cocoon; Mosquitoes; Pond Water; Tracks
OR in library
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NO 89
DE December 23, 1987
CA PSgd
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1974, 1985.
TEACHER'S GUIDE FOR COLORED SOLUTIONS: DENSITY AND LAYERING OF LIQUIDS.
Nashua, NH: Delta Education, Inc.
SE Elementary Science Study
TI TEACHER'S GUIDE FOR COLORED SOLUTIONS: DENSITY AND LAYERING OF
LIQUIDS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education. Inc.
LO Nashua, NH
DP 1974, 1985
PG 45
IL b&w, drawings and photos
BI no
IS 0-07-018517-4
AV out of print, new edition from Delta
PR $6.70, Delta; kit $122.40, Delta (12/87)
AL 3,4,5,6,7,8
RL 3,4,5,6,7,8
DS density
; elementary science methods
; fluid
; liquid
; physical science
 solutions
AN COLORED SOLUTIONS is an introduction to density and the layering of
liquids. Children observe the patterns created by food coloring as it
spreads in plain water. They test for the effects of temperature and
color concentration on the behavior of liquids, and then investigate
what happens when salt water and fresh water are combined. They
experiment with various concentrations of salt water, each dyed a
different color. The liquids are layered in transparent straws
according to their density. Eventually the children develop a scheme
for ordering liquids according to "weight for the same amount." Sample
prediction sheets are included, as are suggestions for evaluation.
(MDB)
TN 12-20 sessions, 35-45 minutes each
MT local purchase, or Delta kit
RE Drops, Streams and Containers; Kitchen Physics; Optics; Sink or
Float; Water Flow
OR in library
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NO 90
DE December 24, 1987
CA BIgd
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971.
TEACHER'S GUIDE FOR EARTHWORMS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study
TI TEACHER'S GUIDE FOR EARTHWORMS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education. Inc.
LO Nashua, NH
DP 1971
PG 30
IL b&w, drawings and photos
BI no
IS 07-017707-4
AV out of print, new edition from Delta
PR $5.15, Kit $35.70 from Delta (12/87)
AL 4,5,6
RL 4,5,6
DS animals
: animal behavior
: animal care
; biology
; earthworms
; elementary science methods
: environment
: habitat
: invertebrates
: life cycle
AN Children observe the developmental stages and investigate the
behavioral patterns of these abundant and easy-to-care-for animals,
EARTHWORMS. Students design and carry out experiments to determine the
kind of environment earthworms prefer: light or dark, moist or dry,
warm or cool. They experiment with different soil types in the
earthworm's habitat. By creating mini-environments in clear plastic
tubes or boxes, they observe how worms move, and what they do
underground. Outdoor lessons provide an opportunity to compare
classroom observation with the actual earthworm environment. Children
test their classroom experiences by predicting where they will find
earthworms outdoors. The guide provides information on collecting,
purchasing, caring for, housing, and feeding earthworms. (BW & MDB)
TN 3-7 sessions, 35-45 minutes each
MT locally available, or Delta kit
RE Brine Shrimp, Butterflies, Crayfish, Eggs and Tadpoles, Mosquitoes
OR in library
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NO 91
DE December 24, 1987
CA PSgd
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1974, 1986.
TEACHER'S GUIDE FOR ICE CUBES: MELTING RATES OF ICE. Nashua, NH: Delat
Education, Inc.
SE Elementary Science Study
TI TEACHER'S GUIDE FOR ICE CUBES: MELTING RATES OF ICE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1974, 1986
PG 66
IL b&w, drawings and photos
IS 0-07-018522-0
AV out of print, new edition from Delta Education
PR $7.50, kit $96.90 from Delta
AL 3,4,5
RL 3,4,5
DS conduction
; conductivity
 elementary science methods
: heat
: ice
: insulation
; melting
; physical science
 : surface-volume ratio
: temperature
: thermometer
: water
AN ICE CUBES presents a number of activities and questions about the
effects of heat, surface area, and conductivity on melting rates of
ice. Children measure the time it takes for an ic: cube to melt in air
and in different amounts of water; they compare the melting rates of
unusually shaped ice cubes to develop ideas about surface-volume
relationships; and they compare the melting rates of ice in contact
with metal, wood, and other materials. Children collect data from
their observations and experiments, learn to use a thermometer, and
construct tables and graphs to report their findings. The guide
includes three worksheets to give children experience in measuring
elapsed time, six problem cards to stimulate independent investigations
as free-time projects or homework, and a reproducible article entitled
"Can You Make a Better Ice Cube Keeper?" which encourages children to
continue their investigation of insulators.
TN 15 - 35 sessions, 35 - 45 minutes each
MT locally available, or Delta kit
RE Heating and Cooling
OR in library
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NO 92
DE January 12, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1985.
TEACHER'S GUIDE FOR BRINE SHRIMP. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR BRINE SHRIMP
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1985
PG 26
IL b&w, photos and drawings
AV Delta Education, Inc.
PR Guide: $4.25
; Kit: $29.60
; Activity Cards (30): $5.10
; Readers (6): $8.50 ea.
AL k,1,2,3,4,5
RL 1,2,3,4
DS animals
; animal behavior
; biology
; brine shrimp
; crustaceans
; development
; elementary science methods
: lens
; life cycle
; microorganisms
; microscopic life
: water
AN BRINE SHRIMP provides a simple, inexpensive way to introduce
children to the study of living things and to the workings of a life
cycle. Students maintain a saltwater environment in which these tiny
crustaceans hatch, grow, and eventually produce offspring. Although
designed for grades one and two, the unit also includes more formal
experiments for third and fourth grades. Children are encouraged to
observe carefully as they conduct simple activities to determine the
effects of light, temperature, and salt concentrations. (Brine shrimp
take about six weeks to mature, a factor which should be considered in
planning the unit.) (MDB)
TN six weeks, two to three sessions per week, 30 minutes each.
MT locally available, or Delta kit.
RE Butterflies, Eggs and Tadpoles, Pondwater, Crayfish
OR in library
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NO 93
  DE 1/12/88
  SU Biology
  TY Teacher's Guide
  CI Elementary Science Study (Education Development Center), 1970.
  TEACHER'S GUIDE FOR BUDDING TWIGS. New York: Webster Division, McGraw
  Hill Book Company.
  SE Elementary Science Study (ESS)
  TI TEACHER'S GUIDE FOR BUDDING TWIGS
  AU Elementary Science Study (Education Development Center)

    AF National Science Foundation

  PU Webster Division, McGraw Hill Book Company
  LO New York, NY
  DP 1970
  PG 44
  IL b&w, photos and drawings
  BI yes
  IS 07-017698-1
  LC QK645 b .E38 1970
  AV out of print
  AL 4,5,6
  RL 4,5,6
  DS biology
  ; botany
  ; elementary science methods
  : flowers
  : leaves
  ; life cycle
  ; plants
  : shrubs
   : trees
  AN In BUDDING TWIGS, children examine the structure of twigs brought
  into the classroom, and observe the development of buds forced into
  leaf or bloom ahead of season. The children note external features of
  "bare" winter twigs: bark color and texture, leaf scars, thorns, and
  hairs. During development of buds, the students observe position,
  number, covering, and arrangement on the twig. They dissect buds and
  stems to reveal internal structure, and use colored water to observe
  water conduction in twigs. They also experiment with methods for
  accelerating bud development. The guide contains information on
  collecting, cutting, and caring for twigs. There are also drawings of
  common twigs and buds, and a budding sequence chart. (BW & MDB)
  TN 6-8 weeks, 2-3 sessions per week, 45 minutes each; late winter,
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RE Butterflies, The Life of Beans and Peas, Starting from Seeds

early spring

OR in library

MT locally available

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NO 94
 DE January 12, 1988
 SU Physical Science
 TY Teacher's Guide
 CI Elementary Science Study (Education Development Center), 1969, 1985.
 TEACHER'S GUIDE FOR CLAY BOATS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR CLAY BOATS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 21
IL b&w, photos and drawings
BI no
IS 07-017562-4
LC QC148.2 b .E38
AV out of print, new edition from Delta Education
PR guide: $3.50, kit $63.25, 42 activity cards $7.40, readers 6 @ $8.50
 from Delta Education January 1988
AL 2,3,4,5,6
RL 3,4,5,6
DS buoyancy
 ; density
 ; elementary science methods
 : float
 ; fluid
 ; physical science
 ; sinking
 ; water
 AN In this investigation of buoyancy, children discover how an object
 such as a lump of clay, which might ordinarily sink in water, can be
made to float. By shaping the clay in various ways, the children
 discover that some designs float better than others. They then load
 their boats with common classroom objects or small uniform weights to
 find out how much "cargo" the boats can carry, and which designs
 support the most weight. The children go on to experiment with plastic
 cups, aluminum foil, and other materials to test their ideas about
buoyancy. Younger students may have less patience than older ones in
 conducting the more formal experiments, a factor which should be
 considered in lesson planning. (MDB)
 TN 15 sessions, 35-45 minutes each, for grade: 4,5,6; less time for
 MT locally available, or Delta Education kit
RE Sink or Float
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NO 95
DE January 12, 1988
SU Biology
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969.
TEACHER'S GUIDE FOR CRAYFISH. New York: Webster Division, McGraw Hill
Book Company.
SE Elementary Science Study (ESS)
TI TEACHER'S GUIDE FOR CRAYFISH
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Webster Division, McGraw Hill Book Company
LO New York, NY
DP 1969
PG 28
IL b&w, photos and drawings
BI no
IS 07-017573-x
LC QL444.M33 b E381 1969
AV out of print
AL 4,5,6
RL 4,5,6
DS animals
: animal behavior
; animal care
; biology
; crayfish
; crustaceans
: elementary science methods
: environment
; habitat
; life cycle
: pond life
; water
AN In CRAYFISH, children conduct classroom investigations of the
behavior of these freshwater crustaceans. They offer different types
of food and note the animals' preference, and by making modifications
to the animals' environment, discover not only which habitat the
crayfish prefer, but also how environment influences social structure.
Opportunities for further observation and experimentation are
encouraged, and background information on gender differences,
reproduction, and general care are provided. The guide also suggests
sources and techniques for collecting or buying crayfish, and for
preserving any classroom specimens that fail to survive. (MDB)
TN 5-7 weeks, 3-5 sessions per week, 30 minutes each
MT locally available, or through commercial suppliers
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RE Brine Shrimp, Eggs and Tadpoles, Pondwater

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NO 96
DE January 12, 1988
 SU Physical Science
 TY Teacher's Guide
 CI Elementary Science Study (Education Development Center), 1969, 1985.
MOBILES (A GUIDE FOR TEACHERS). Nashua, NH: Delta Education, Inc.
 SE Elementary Science Study (ESS)
 TI MOBILES (A GUIDE FOR TEACHERS)
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1985
PG 23
 IL b&w, photos and drawings
BI no
 IS 07-17512-8
 LC QC107 b .E378 1969
 AV out of print, new edition from Delta Education
 PR guide: $4.10, kit: $28.55, activity cards $1.80 from Delta Education
 January, 1988
 AL k,1,2,3,4
 RL k, 1, 2, 3, 4
 DS balance
 ; elementary science methods
 ; mobile
 ; physical science
 ; symmetry
 AN In MOBILES, children investigate principles of balance,
 experimenting with the effects of symmetry and weight on a balanced
 system. Using oaktag or cardboard, they design and construct the
 shapes for their mobiles. The children then explore the various ways
 of hanging and balancing their shapes with yarn and reeds or sticks.
 (BW)
 TN 4-6 sessions, 30-45 minutes each
 MT locally available, or kit from Delta Education
 RE Primary Balancing
 OR in library
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NO 97
DE 12 January, 1988
SU Chemistry
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1966, 1986.
MYSTERY POWDERS. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI MYSTERY POWDERS
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1966, 1986
PG 23
IL b&w, photos and drawings
AV out of print, new edition from Delta Education
PR guide: $3.55
; kit: $55.10
; activity cards (16): $3.20
; readers (6): $8.50 ea.
AL 3,4
RL 3,4
DS chemistry
: chemical reaction
; elementary science methods
; physical properties
: solutions
: water
AN MYSTERY POWDERS introduces children to the detailed examination of
chemical and physical properties of familiar substances, and to the use
of indicators as a means of identifying these substances. At the
start, students receive four unnamed white powders: sugar, salt, baking
soda, and starch. They try to identify these by tasting smelling,
feeling, and comparing their powders with identified substances. Next,
the children use magnifying lenses to observe size and shape of
individual particles. They mix the powders with water and perform
tests with heat, iodine, and vinegar in order to gain additional
information about the powders' properties. Each powder reacts in a
specific way. By using what they've learned, children apply their
tests to determine presence of individual powders in new mystery
mixtures. Careful observation and discussion of results are
encouraged, as is use of charts for organizing data. (BW)
TN 10 sessions, 45 minutes each
MT locally available, or kit from Delta Education, also activity cards
from Delta
OR in library
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NO 98
DE 12 January, 1988
SU Earth Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1969, 1986.
ROCKS AND CHARTS TEACHER'S GUIDE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI ROCKS AND CHARTS TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1969, 1986
PG 26
IL b&w, photos and charts
BI yes
IS 0-07-018527-1
LC QE366 b .E38 1974
AV out of print, new edition from Delta Education
PR guide: $5.05
 ; Kit: $26.50
 ; readers (6): $8.50 ea.
 ; activity cards (23): $3.65
AL 3,4,5,6
RL 3,4,5,6
DS charts
 : classification
 : earth science
 ; elementary science methods
 ; geology
 ; minerals
 : rocks
AN ROCKS AND CHARTS invites children to look closely at the
 characteristics of rocks in order to establish ways of comparing and
differentiating them. Excellent introductory chartmaking activities are
used to help classify and identify rocks. Children use their own
criteria for sorting, then learn more standard tests for streak,
hardness, magnetism, and mineral content. The guide contains many
 activities and games, as well as facts about how rocks are named, and
how they are used. (MDB)
TN 15-20 sessions, 45 minutes each
MT kit from Delta Education, or specimens from commercial suppliers
RE Attribute Games and Problems, Mystery Powders
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NO 99
DE 12 January, 1988
SU Physical Science
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1971, 1986.
SINK OR FLOAT TEACHER'S GUIDE. Nashua, NH: Delta Education, Inc.
SE Elementary Science Study (ESS)
TI SINK OR FLOAT TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1971, 1986
PG 32
IL b&w, photos and drawings
BI no
IS 07-017724-4
LC QA907 b .E38 1971
AV out of print, new edition from Delta Education
PR guide: $5.70
; kit: $85.70
; activity cards (48): $7.90
AL 2,3,4,5,6,7
DS buoyancy
; density
: float
: fluid
: liquid
; physical science
; sinking
; water
AN In SINK OR FLOAT, children explore the concept of density of
materials by experimenting with displacement and buoyancy. The objects
used are cylinders, cubes, and spheres in various sizes and densities
(wood, acrylic, aluminum, and polyethylene). As they work with these
items, the children find objects that sink in oil but float in water;
some that float high and others that barely float. Children sort the
objects by weight and buoyancy, measuring and comparing amounts of
water displaced by various objects. They find ways to change a
"sinker" into a "floater", or vice versa, and discover that by adding
salt to water, they may be able to affect buoyancy. (BW and MDB)
TN 12 sessions, 45 minutes each
MT locally available, or kit from Delta Education
RE Balloons and Gases, Blay Boats, Colored Solution, Water Flow
OR in library
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NO 100
DE 12 January, 1988
SU Skill Development
TY Teacher's Guide
CI Elementary Science Study (Education Development Center), 1968, 1984.
ATTRIBUTE GAMES AND PROBLEMS: TEACHER'S GUIDE, Nashua, NH: Delta
Education, Inc.
SE Elementary Science Study (ESS)
TI ATTRIBUTE GAMES AND PROBLEMS: TEACHER'S GUIDE
AU Elementary Science Study (Education Development Center)
AF National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1968, 1984
PG 87
IL b&w photos, color drawings
AV Delta Education, Inc.
PR guide: $17.65, kit: $20.95, 70 activity cards: $25.00, readers @
6/$8.50
AL k,1,2,3,4,5,6,7,8,9
RL k, 1, 2, 3, 4, 5, 6, 7, 8, 9
DS attributes
: classification
; observation
; problem-solving
: sets
; skill development
; elementary science methods
AN In ATTRIBUTE GAMES AND PROBLEMS, children apply processes of
observation and classification as they manipulate wooden or plastic
objects of various shapes, sizes, and colors. Using their own or
suggested criteria, children order the objects by attribute and value,
defining sets and subsets such as yellow squares, large red circles,
blue adult females, and so on. Problem cards encourage children to
develop strategies for identifying or constructing patterns that meet
specific criteria, for example, determining how many unique two-color
combinations and presentations can be made using six different colors
of cubes, or how many ways there are of putting four cubes of different
color in a row. Activities can be used to foster cooperative learning
in small groups, as children work together to establish classification
criteria and to collect and share data for problem-solving, either
during scheduled class time, or during free time at classroom learning
centers. The guide's inventory of activity materials is not detailed
enough to facilitate local purchase or production of supplies. (MDB)
MT kit from Delta
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RE Mystery Powders, Rocks and Charts

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NO 653
DE March 25, 1988
SU Biology
; Insects
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1986. INCREDIBLE INSECTS. Washington,
DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI INCREDIBLE INSECTS
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1986
PG 65
IL 2-color line drawings
BI yes
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS adaptation
; animal behavior
; beetles
; biology
; butterflies
; caterpillars
; elementary science methods
: entomology
; grasshoppers
: insects
; integrated curriculum
: larva
; metamorphosis
; moths
: predators
AN INCREDIBLE INSECTS provides an introduction to the biology and
behavior of these diverse and multitudinous organisms. Activities range
in appeal from kindergarten to intermediate grades, integrating science
with language arts, mathematics, social studies, physical education and
      Through simulations, games, classroom experiments, and playground
activities, children investigate the characteristics of insects and
learn about their interactions with humans. The guide contains
extensive background information for teachers, with student activity
sheets and thirty-four well-organized lesson plans. An appendix
provides additional information on evaluation, resources, and
construction of useful equipment.
TN Informal; 34 activities at 15-60 minutes
MT locally available
OR in library
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NO 654 DE March 25, 1988 SU Life Sciences ; Paleontology TY Teacher's Guide CI Ranger Rick's NatureScope, 1984. DIGGING INTO DINOSAURS. Washington, DC: National Wildlife Federation. SE Ranger Rick's Naturescope TI DIGGING INTO DINOSAURS AU Ranger Rick's NatureScope AF National Wildlife Federation PU National Wildlife Federation LO 1412 16th St., N.W., Washington, DC 20036-2266 DP 1984 PG 65 IL 2-color line drawings BI yes PR \$6.00 AL K,1,2,3,4,5,6,7 RL K,1,2,3,4,5,6,7 DS adaptation ; dinosaurs ; elementary science methods : evolution ; extinction ; fossils ; integrated curriculum ; paleontology ; prehistoric life AN DIGGING INTO DINOSAURS introduces students and teachers to these extinct animals and the world in which they lived. Fossil evidence forms the basis for information and activities provided by the guide. In classroom and playground lessons that integrate science with mathematics, language arts, social studies, art, and physical education, students from kindergarten to intermediate grades learn the comparative sizes of the creatures, how they were named, and what their lives might have been like. Background information is extensive, and the twenty-four detailed lesson plans are accompanied by student activity sheets. An appendix provides additional information on resources, evaluation, and current theories. TN Informal; 24 activities at 15-60 minutes MT locally available OR in library

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NO 655
 DE March 25, 1988
 SU Earth Science
 ; Weather
 TY Teacher's Guide
 CI Ranger Rick's NatureScope, 1985. WILD ABOUT WEATHER. Washington,
 DC: National Wildlife Federation.
 SE Ranger Rick's Naturescope
 TI WILD ABOUT WEATHER
 AU Ranger Rick's NatureScope
 AF National Wildlife Federation
 PU National Wildlife Federation
. LO 1412 16th St., N.W., Washington, DC 20036-2266
 DP 1985
 PG 65
 IL 2-color line drawings
 BI yes
 PR $6.00
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS air
 ; air pressure
 ; barometric pressure
 : climate
 : clouds
 ; elementary science methods
 ; integrated curriculum
 ; lightning
 ; meteorologists
 ; meteorology
 : rain
 ; snow
 : temperature
 : thunder
 ; weather
 AN WILD ABOUT WEATHER is an interdisciplinary guide to the causes,
 kinds, and impacts of weather. Students from kindergarten to
 intermediate grades engage in classroom or playground experiments,
 games, and simulations, as they investigate how weather happens and how
 it affects the earth and its inhabitants. Thirty well-organized lesson
 plans are supplemented by student activity sheets and detailed
 background information. An appendix contains suggestions for
 evaluation, and many useful resources.
 TN Informal: 30 sessions at 15-60 minutes
 MT locally available
 OR in library
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NO 656
DE March 25, 1988
SU Life Sciences
; Biology
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1986. BIRDS, BIRDS! Washington,
DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI BIRDS, BIRDS, BIRDS!
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1986
PG 65
IL 2-color line drawings
BI yes
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS adaptation
: animals
; animal behavior
; biology
; birds
: eggs
; elementary science methods
; feathers
; flight
; integrated curriculum
: nests
; ornithology
AN BIRDS, BIRDS, BIRDS! provides an interdisciplinary introduction to
the study of ornithology. Students participate in classroom and
playground activities that investigate the biological and behavioral
characteristics of birds through observation, games and simulations,
writing and art. Ranging in appeal from kindergarten to intermediate
grades, the guide contains twenty-five detailed lesson plans with
background information and supplemental student activity sheets.
is an extensive appendix of resources and evaluation questions.
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TN Informal: 25 sessions at 15-60 minutes

MT locally available

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DE March 25, 1988
 SU Life Sciences
 ; Ecology
 Th Teacher's Guide
 CI Ranger Rick's NatureScope, 1986. DISCOVERING DESERTS Washington,
 DC: National Wildlife Federation.
 SE Ranger Rick's Naturescope
 TI DISCOVERING DESERTS
 AU Ranger Rick's NatureScope
 AF National Wildlife Federation
 PU National Wildlife Federation
. LO 1412 16th St., N.W., Washington, DC 20036-2266
 DP 1986
 PG 65
 IL b&w photos and 2-color line drawings
 BI yes
 PR $6.00
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS adaptation
 : animals
 ; arid lands
 ; biology
 : botany
 : climate
 : conservation
 : deserts
 ; ecology
 ; elementary science methods
 : environment
 : habitat
 ; integrated curriculum
 ; plants
 : weather
 AN DISCOVERING DESERTS introduces the ecology of arid lands. Students
 engage in interdisciplinary classroom and playground activities that
 explore the concepts of desert formation, conservation, and animal and
 human adaptation for arid climates. There are twenty-three carefully
 planned lessons ranging in appeal from kindergarten through
 intermediate grades, with complete background information and
 supplemental student activity sheets. An appendix suggests questions
 for evaluation as well as additional resources.
 TN Informal; 23 sessions at 15-60 minutes each
 MT locally available
 OR in library
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NO 657

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NO 658
DE March 25, 1988
SU Life Sciences
; Biology
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1985. TREES ARE TERRIFIC! Washington,
DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI TREES ARE TERRIFIC!
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1985
IL b&w photos and 2-color line drawings
BI yes
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS biology
; botany
; ecology
; elementary science methods
; forests
; forest ecology
; growth
; integrated curriculum
; plants
; plant propagation
; reproduction
; trees
AN TREES ARE TERRIFIC! is an interdisciplinary guide to the biology of
trees and forest ecology. Through observations, experiments, games,
and simulations, students from kindergarten through intermediate grades
investigate the characteristics of trees, their growth and
reproduction, and their influence on human life. Twenty-six carefully
detailed lessons are accompanied by extensive background information
and student activity sheets, as well as evaluation questions and
suggested resources.
TN Informal; 26 sessions at 15-60 minutes
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MT locally available

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NO 659
DE March 25, 1988
SU Earth Sciences
; Astronomy
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1986. ASTRONOMY ADVENTURES Washington,
DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI ASTRONOMY ADVENTURES
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
·LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1986
PG 77
IL b&w photos and 2-color line drawings
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS astrology
: astronomy
; elementary science methods
; galaxy
; gases
; integrated curriculum
: models
: moon
: motion
; mythology
: outer space
; planets
; solar system
; space
: stars
; sun
; universe
AN ASTRONOMY ADVENTURES presents an interdisciplinary study of stars,
planets, and astronomical phenomena through use of experiments, games,
simulations, and demonstrations. Students investigate the behavior of
gases and the principles of motion, construct models, and engage in
creative writing and arts activities that relate to the universe, and
humans' place in it. Twenty-nine lessons, ranging in appeal from
kindergarten through intermediate grades, are enhanced by extensive
background information, student activity sheets, and an exhaustive list
of resources.
TN Informal; 29 sessions at 15-60 minutes
MT locally available
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NO 660 DE March 25, 1988 SU Life Sciences : Biology TY Teacher's Guide CI Ranger Rick's NatureScope, 1986. AMAZING MAMMALS, PART I. Washington, DC: National Wildlife Federation. SE Ranger Rick's Naturescope TI AMAZING MAMMANLS, PART I AU Ranger Rick's NatureScope AF National Wildlife Federation PU National Wildlife Federation LO 1412 16th St., N.W., Washington, DC 20036-2266 : DP 1986 PG 77 IL b&w photos and 2-color line drawings BI yes PR \$6.00 AL K,1,2,3,4,5,6,7 RL K,1,2,3,4,5,6,7 DS adaptation ; animals : animal behavior : biology ; classification ; ecology ; elementary science methods ; habitat ; integrated curriculum : mammals ; reproduction ; taxonomy AN AMAZING MAMMALS, PART I introduces the general characteristics of mammals, their biology and behavior, and how they interact with humans. Through observations, experiments, games and simulations, creative writing, crafts, and large-motor activities, children learn to distinguish mammals from other vertebrate classes, and investigate their importance to humans. The guide contains twenty-two lessons suitable for classroom or playground, with detailed background information, student activity sheets, and an excellent list of resources. TN Informal; 22 sessions at 15-60 minutes

MT locally available

OR in library

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NO 661
 DE March 25, 1988
 SU Life Sciences
 : Biology
 TY Teacher's Guide
 CI Ranger Rick's NatureScope, 1986. AMAZING MAMMALS, PART II.
 Washington, DC: National Wildlife Federation.
 SE Ranger Rick's Naturescope
 TI AMAZING MAMMALS, PART II
 AU Ranger Rick's NatureScope
 AF National Wildlife Federation
 PU National Wildlife Federation
 LO 1412 16th St., N.W., Washington, DC 20036-2266
: DP 1986
 PG 77
 IL b&w photos and 2-color line drawings
 BI yes
 PR $6.00
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS adaptation
 ; animals
 ; animal behavior
 ; biology
 ; carnivores
 : classification
 ; elementary science methods
 ; habitat
 : herbivores
 ; insectivores
 ; integrated curriculum
 ; mammals
 ; marine mammals
 : primates
 ; rodents
 : taxonomy
 AN AMAZING MAMMALS, PART II is an interdisciplinary investigation of
 the specific characteristics of mammalian groups. Students participate
 in games and experiments that demonstrate the unique adaptations of
 primates, rodents, marine mammals, hooved mammals, carnivorous, and
 insectivorous mammals. There are twenty-four lessons with detailed
 background information, student activity sheets, questions for further
 study, and a guide to supplemental resoources.
 TN Informal; 24 sessions at 15-60 minutes
 MT locally available
 OR in library
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NO 662
 DE March 25, 1988
 SU Life Sciences
 ; Ecology
 TY Teacher's Guide
 CI Ranger Rick's NatureScope, 1986. WADING INTO WETLANDS. Washington,
 DC: National Wildlife Federation.
 SE Ranger Rick's Naturescope
 TI WADING INTO WETLANDS
 AU Ranger Rick's NatureScope
 AF National Wildlife Federation
 PU National Wildlife Federation
 LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1986
 PG 65
 IL b&w photos and 2-color line drawings
 BI yes
 PR $6.00
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS adaptation
 : animals
 ; biology
 ; botany
 : conservation
 ; ecology
 ; elementary science methods
 : environment
 ; habitat
 ; integrated curriculum
 ; marsh
 ; plants
 ; saltmarsh
 ; swamp
 ; wetland ecology
 AN WADING INTO WETLANDS provides an interdisciplinary introduction to
 the ecology of these tremendously productive habitats. Students
 participate in classroom and field experiences, observing flora and
 fauna, and conducting experiments, games, writing, art, and math
 activities that demonstrate the unique characteristics of wetlands and
 their importance to humans. Twenty well-organized lessons are
 accompanied by useful background information, student activity sheets,
 and a detailed list of resources.
 TN Informal: 20 sessions at 15-60 minutes
 MT locally available
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OR in library

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NO 663
 DE March 25, 1988
 SU Life Sciences
 ; Rcology
 TY Teacher's Guide
 CI Ranger Rick's NatureScope, 1987. GEOLOGY: THE ACTIVE EARTH.
 Washington, DC: National Wildlife Federation.
 SE Ranger Rick's Naturescope
 TI GEOLOGY: THE ACTIVE EARTH
 AU Ranger Rick's NatureScope
 AF National Wildlife Federation
 PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
 DP 1987
 PG 69
 IL b&w photos and 2-color line drawings
 BI yes
 PR $6.00
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS earthquakes
 ; elementary science methods
 ; erosion
 ; fossils
 ; geology
 ; integrated curriculum
 ; minerals
 ; models
 : mountains
 ; plate tectonics
 : rocks
 ; volcanoes
 AN GEOLOGY: THE ACTIVE EARTH is an interdisciplinary investigation of
 the nature of the earth. Students engage in classroom and playground
 experiments and simulations that demonstrate what the earth is made of,
 how old it is, and how it was - and continues to be - formed.
 Activities focus on rocks and minerals, landforms, fossil records, the
 structure of earth, and earth movements such as quakes and volcanoes.
 There are eighteen detailed lessons accompanied by student activity
 sheets, a resource guide, and extensive background information on facts
 and theories.
 TN Informal; 18 sessions at 15-60 minutes
 MT locally available
 OR in library
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NO 664
DE March 25, 1988
SU Life Sciences
; Biology
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1987. ENDANGERED SPECIES: WILD & RARE.
Washington, DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI ENDANGERED SPECIES: WILD & RARE
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1987
PG 69
IL b&w photos and 2-color line drawings
BI yes
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS adaptation
: animals
; biodiversity
; biogeography
; biology
; conservation
: ecology
; elementary science methods
; endangered species
: environment
: habitat
: habitat destruction
: hunting
; integrated curriculum
: niche
; plants
; poaching
; species diversity
AN ENDANGERED SPECIES: WILD AND RARE focuses on the process of
extinction, and the role of humans in destruction or conservation of
plants, animals and their habitats. As they learn about the many kinds
of threats facing plant and animal species, students participate in
classroom and playgound activities integrating science with social
studies, mathematics, and language arts, drama, music, and art.
are nineteen detailed lesson plans, student activity sheets, and
excellent background information, as well as a useful resource guide.
TN Informal; 19 sessions at 15-60 minutes
MT locally available
OR in library
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DE March 25, 1988
SU Life Sciences
; Biology
TY Teacher's Guide
CI Ranger Rick's NatureScope, 1987. LET'S HEAR IT FOR HERPS!
Washington, DC: National Wildlife Federation.
SE Ranger Rick's Naturescope
TI LET'S HEAR IT FOR HERPS!
AU Ranger Rick's NatureScope
AF National Wildlife Federation
PU National Wildlife Federation
LO 1412 16th St., N.W., Washington, DC 20036-2266
DP 1987
PG 69
IL b&w photos and 2-color line drawings
BI yes
PR $6.00
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS adaptation
: animals
: animal behavior
; amphibians
; biology
: conservation
; ecology
; elementary science methods
; frogs
: habitat
; habitat destruction
: herps
; integrated curriculum
: life cycles
: lizards
; reptiles
; snakes
: toads
AN LET'S HEAR IT FOR HERPS! is an interdisciplinary approach to the
study of reptiles and amphibians, their characteristics, life cycles,
and interactions with humans. Students engage in classroom and
playground experiments, games, and simulations that introduce the
variety of herps and their adaptations for survival. They investigate
the history of these animals, and explore scenarios for the future,
including problems of predation, over-hunting, and habitat destruction.
There are twenty lessons accompanied by excellent background
information, student activity sheets, and a detailed resource guide.
TN Informal; 20 sessions at 15-60 minutes
MT locally available
OR in library
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NO 665

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NO 666
DE March 28, 1988
SU Nature
CI Amos, William H., 1969. LIMNOLOGY: An Introduction to the Fresh
Water Environment. Chestertown, Maryland: LaMotte Chemical Products
Company.
TI LIMNOLOGY: An Introduction to the Fresh Water Environment
AU Amos, William H.
AP
PU LaMotte Chemical Products Company
[LO Chestertown, Maryland
DP 1969
PG 40
IL bew photos and illustrations
BI yes
IS
DS
OR in library
NO 686
DE March 29, 1988
SU Anatomy
CI Balestrino, Philip, 1971. THE SKELETON INSIDE YOU. New York: A
Harper Trophy Book, Harper & Row, Publishers.
TI THE SKELETON INSIDE YOU
AU Balestrino, Philip
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1971
PG 34
IL color illustrations
BI no
IS 0-06-445039-2
DS
OR in library
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NO 667
DE March 28, 1988
SU Nature
CI British Museum (Natural History), 1982. NATURE AT WORK. London:
The British Museum, and the Press Syndics of the University of
Cambridge.
SE
TI NATURE AT WORK
AU British Museum (Natural History)
PU The British Museum, and the Press Syndics of the University of
Cambridge
LO London
DP 1982
PG 84
IL color photos and illustrations
IS 0-521-22390-3
DS
OR in library
NO 668
DE March 28, 1988
SU Nature
TY
CI Claridge, Marit and Shackell, John, 1985. LIVING THINGS: A Simple
Introduction. London: Usborne Publishing Ltd.
SE
TI LIVING THINGS: A Simple Introduction
AU Claridge, Marit and Shackell, John
AF
PU Usborne Publishing Ltd.
LO London
DP 1985
PG 39
IL color illustrations
BI no
IS 0-86020-986-5
DS
OR in library
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NO 668
DE March 28, 1988
SU Nature
TY
CI Claridge, Marit and Shackell, John, 1985. LIVING THINGS: A Simple
Introduction. London: Usborne Publishing Ltd.
SE
TI LIVING THINGS: A Simple Introduction
AU Claridge, Marit and Shackell, John
AF
PU Usborne Publishing Ltd.
LO London
DP 1985
PG 39
IL color illustrations
BI no
IS 0-86020-986-5
DS
OR in library
NO 669
DE March 28, 1988
SU Nature
CI Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth, 1980. FIRST
BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths. London:
Usborne Publishing Ltd.
TI FIRST BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths
AU Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth
PU Usborne Publishing Ltd.
LO London
DP 1980
PG 94
IL color illustrations
BI no
IS 0-86020-483-9
DS
OR in library
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NO 669
DE March 28, 1988
SU Nature
CI Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth, 1980. FIRST
BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths. London:
Usborne Publishing Ltd.
TI FIRST BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths
AU Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth
AF
PU Usborne Publishing Ltd.
LO London
DP 1980
PG 94
IL color illustrations
BI no
IS 0-86020-483-9
DS
OR in library
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B

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March 28, 1988
SU Nature
TY
CI Foth, Dr. Henry D., 1970. A STUDY OF SOIL SCIENCE: Expanded Second
Edition. Chestertown, Maryland: LaMotte Chemical Products Company.
TI A STUDY OF SOIL SCIENCE: Expanded Second Edition
AU Foth, Dr. Henry D.
PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1970
PG 44
IL b&w photos and illustrations
BI yes
IS
DS
OR in library
NO 689
DE March 29, 1988
SU Anatomy
CI Goldin, Augusta, 1966. STRAIGHT HAIR, CURLY HAIR. New York: A
Harper Trophy Book, Harper & Row, Publishers.
SE A Let's Read and Find Out Book
TI STRAIGHT HAIR, CURLY HAIR
AU Goldin, Augusta
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1966
PG 34
IL color illustrations
BI no
IS 0-06-445037-6
DS
OR in library
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NO 671
 DE March 28, 1988
 SU Nature
 TY
 CI LaMotte Chemical Products Company, 1970. LaMotte SOIL HANDBOOK.
 Chestertown, Maryland: LaMotte Chemical Products Company.
 TI THE LaMotte SOIL HANDBOOK
 AU LaMotte Chemical Products Company
 AF
 PU LaMotte Chemical Products Company
 LO Chestertown, Maryland
DP 1985
 PG 59
 IL baw photos and illustrations
 BI no
IS
DS
 OR in library
 NO 678
 DE March 28, 1988
 SU Nature
 TY
 CI Margulis, Lynn, 1985. SHARING WITH CHILDREN: NEW IDEAS ON THE
 EVOLUTION OF LIFE. New York: The Workshop Center.
 TI SHARING WITH CHILDREN: NEW IDEAS ON THE EVOLUTION OF LIFE
 AU Margulis, Lynn
 AF
 PU The Workshop Center
 LO New York
 DP 1985
 PG 26
 IL b&w photos
 BI no
 IS 0-918374-21-9
 DS
 OR in library
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NO 672
DE March 28, 1988
SU Nature
TY
CI Mitchell, Andrew, 1982. THE YOUNG NATURALIST: An Introduction to
Nature Studies. London: Usborne Publishing Ltd..
TI THE YOUNG NATURALIST: An Introduction to Nature Studies.
AU Mitchell, Andrew
AF
PU Usborne Publishing Ltd.
LO London
DP 1982
PG 32
IL color illustrations
BI no
IS 0-86020-653-x
DS
OR in library
NO 690
DE March 29, 1988
SU Anatomy
TY
CI National Geographic Society, 1986. THE INCREDIBLE MACHINE.
Washington, DC: The National Geograpic Society.
TI THE INCREDIBLE MACHINE
AU National Geographic Society
AF
PU The National Geographic Society
LO Washington, DC
DP 1986
PG 384
IL b&w photos and illustrations
BI yes
IS
DS
OR in library
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NO 673
DE March 28, 1988
SU Nature
TY
CI Renn, Dr. Charles E., 1970. INVESTIGATING WATER PROBLEMS.
Chestertown, Maryland: LaMotte Chemical Products Company.
SE
TI INVESTIGATING WATER PROBLEMS
AU Renn, Dr. Charles E.
AF
PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1970
PG 72
IL b&w illustrations
BI no
IS
DS
OR in library
NO 676
DE March 28, 1988
SU Nature
TY
CI Rieke, Dr. Paul E. and Warncke, Dr. Darryl D., 1975. GREENHOUSE
SOILS. Chestertown, Maryland: LaMotte Chemical Products Company.
SE
TI GREENHOUSE SOILS
AU Rieke, Dr. Paul E. and Warncke, Dr. Darryl D.
AF
PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1975
PG 36
IL b&w photos and illustrations
IS
DS
OR in library
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NO 674
DE March 28, 1988
SU Nature
TY
CI Renn, Dr. Charles E., 1970. OUR ENVIRONMENT BATTLES WATER
POLLUTION. Chestertown, Maryland: LaMotte Chemical Products Company.
TI OUR ENVIRONMENT BATTLES WATER POLLUTION
AU Renn, Dr. Charles E.
AF
PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1969
PG 32
IL b&w photos and illustrations
BI no
IS
DS
OR in library
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NO 675
 DE March 28, 1988
 SU Nature
 TY
 CI Renn, Dr. Charles E., 1968. A STUDY OF WATER QUALITY. Chestertown,
 Maryland: LaMotte Chemical Products Company.
 TI A STUDY OF WATER QUALITY
AU Renn, Dr. Charles E.
AF
 PU LaMotte Chemical Products Company
LO Chestertown, Maryland
. DP 1968
 PG 46
 IL b&w photos and illustrations
BI no
IS
DS
OR in library
NO 674
DE March 28, 1988
SU Nature
 CI Renn, Dr. Charles E., 1970. OUR ENVIRONMENT BATTLES WATER
POLLUTION. Chestertown, Maryland: LaMotte Chemical Products Company.
TI OUR ENVIRONMENT BATTLES WATER POLLUTION
AU Renn, Dr. Charles E.
AF
 PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1969
PG 32
 IL b&w photos and illustrations
BI no
IS
DS
OR in library
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NO 676
DE March 28, 1988
SU Nature
CI Rieke, Dr. Paul E. and Warncke, Dr. Darryl D., 1975. GREENHOUSE
SOILS. Chestertown, Maryland: LaMotte Chemical Products Company.
TI GREENHOUSE SOILS
AU Rieke, Dr. Paul E. and Warncke, Dr. Darryl D.
 PU LaMotte Chemical Products Company
 LO Chestertown, Maryland
 DP 1975
 PG 36
 IL b&w photos and illustrations
 BI no
 IS
 DS
 OR in library
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NO 677
DE March 28, 1988
SU Nature
CI Stegner, Robert W., 1971. PLANT NUTRITION STUDIES. Chestertown,
Maryland: LaMotte Chemical Products Company.
TI PLANT NUTRITION STUDIES
AU Stegner, Robert W.
AF
PU LaMotte Chemical Products Company
LO Chestertown, Maryland
DP 1971
.PG 76
IL b&w photos and illustrations
BI yes
IS
DS
OR in library
NO 683
DE March 29, 1988
SU Nature
; Evolution
TY
CI Stein, Sara, 1986. THE EVOLUTION BOOK. Workman Publishing: New
York.
SE
TI THE EVOLUTION BOOK
AU Stein, Sara
AF
PU Workman Publishing
LO New York
DP 1986
PG 390
IL b&w photos and illustrations
BI no
IS 0-89480-927-x
DS
OR in library
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NO 678
DE March 28, 1988
SU Nature
TY
CI Margulis, Lynn, 1985. SHARING WITH CHILDREN: NEW IDEAS ON THE
EVOLUTION OF LIFE. New York: The Workshop Center.
TI SHARING WITH CHILDREN: NEW IDEAS ON THE EVOLUTION OF LIFE
AU Margulis, Lynn
AF
PU The Workshop Center
LO New York
DP 1985
PG 26
IL b&w photos
BI no
IS 0-918374-21-9
DS
OR in library
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NO 679
DE March 28, 1988
SU Nature
TY
CI Committee on Science and Creationism, National Academy of Sciences,
1984 SCIENCE AND CREATIONISM: A View from the National Academy of
Sciences. Washington, DC: National Academy Press.
TI SCIENCE AND CREATIONISM: A View from the National Academy of
Sciences
AU Committee on Science and Creationism, National Academy of Sciences
AF
.PU National Academy Press
LO Washington, DC
DP 1984
PG 28
IL color and b&w photos and illustrations
BI no
IS
DS
OR in library
NO 669
DE March 28, 1988
SU Nature
TY
CI Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth, 1980. FIRST
BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths. London:
Usborne Publishing Ltd.
SE
TI FIRST BOOK OF NATURE: Birds, Trees, Flowers, Butterflies and Moths
AU Cox, Rosamund Kidman, Cork, Barbara and Thomson, Ruth
AF
PU Usborne Publishing Ltd.
LO London
DP 1980
PG 94
IL color illustrations
IS 0-86020-483-9
OR in library
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NO 681 DE March 28, 1988 SU Nature TY CI Needham, James G. and Needham, Paul R., 1962. A GUIDE TO THE STUDY OF FRESH WATER BIOLOGY. San Francisco, CA: Holden-Day, Inc. TI A GUIDE TO THE STUDY OF FRESH-WATER BIOLOGY AU Needham, James G. and Needham, Paul R. AF PU Holden-Day, Inc. LO San Francisco, CA DP 1962 PG 108 IL b&w illustrations BI yes IS 62-20742 DS OR in library

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NO 682
 DE March 28, 1988
 SU Nature
 TY A Minnemast Handbook for Teachers of Early Elementary Grades
 CI Subarsky, Zachariah, Reed, Elizabeth W., Landin, Edward R. and
 Klaits, Barrie G., 1967. LIVING THINGS IN FIELD AND CLASSROOM.
 Minneapolis, Minnesota: University of Minnesota.
 SE
 TI LIVING THINGS IN FIELD AND CLASSROOM
 AU Subarsky, Zachariah, Reed, Elizabeth W., Landin, Edward R. and
 Klaits, Barrie G.
 AF
PU University of Minnesota
 LO Minneapolis, Minnesota
 DP 1967
 PG 134
 IL b&w illustrations
 BI no
 IS
 DS
 OR in library
 NO 685
 DE March 29, 1988
 SU Nature
 ; Sea
 TY
 CI Yonge, C.M., 1963. THE SEA SHORE. New York: Atheneum.
 TI THE SEA SHORE
 AU Yonge, C.M.
 AF
 PU Atheneum
 LO New York
 DP 1963
 PG 326
 IL b&w illustrations
 BI no
 IS 63-13688
 DS
 OR in library
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NO 683
DE March 29, 1988
SU Nature
; Evolution
CI Stein, Sara, 1986. THE EVOLUTION BOOK. Workman Publishing: New
York.
SE
TI THE EVOLUTION BOOK
AU Stein, Sara
AF
PU Workman Publishing
LO New York
DP 1986
PG 390
IL b&w photos and illustrations
BI no
IS 0-89480-927-x
DS
OR in library
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NO 684
DE March 29, 1988
 SU Nature
 ; Oceanography
TY
 CI Sipiera, Paul P., 1987. I CAN BE AN OCEANOGRAPHER. Chicago:
 Childrens Press.
 SE
TI I CAN BE AN OCEANOGRAPHER
AU Sipiera, Paul P.
AF
PU Childrens Press
LO Chicago
DP 1987
PG 32
IL color photos
BI no
IS 0-516-01905-8
DS
OR in library
NO 683
DE March 29, 1988
SU Nature
 ; Evolution
TY
CI Stein, Sara, 1986. THE EVOLUTION BOOK. Workman Publishing: New
York.
TI THE EVOLUTION BOOK
AU Stein, Sara
AF
PU Workman Publishing
LO New York
DP 1986
PG 390
IL b&w photos and illustrations
BI no
IS 0-89480-927-x
DS
OR in library
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NO 680
 DE March 28, 1988.
 SU Nature
 TY
 CI National Wildlife Federation. YOUR BIG BACKYARD: SEE & DO NATURE
 SERIES. Washington, DC: National Wildlife Federation.
 TI YOUR BIG BACKYARD: SEE & DO NATURE SERIES
 AU National Wildlife Federation
 PU National Wildlife Federation
 LO Washington, DC
. Db
 PG
 IL color illustrations
 BI no
 IS
DS
 OR in library
 NO 681
 DE March 28, 1988
 SU Nature
 CI Needham, James G. and Needham, Paul R., 1962. A GUIDE TO THE STUDY
 OF FRESH WATER BIOLOGY. San Francisco, CA: Holden-Day, Inc.
 TI A GUIDE TO THE STUDY OF FRESH-WATER BIOLOGY
 AU Needham, James G. and Needham, Paul R.
 AF
 PU Holden-Day, Inc.
 LO San Francisco, CA
 DP 1962
 PG 108
 IL b&w illustrations
 BI yes
 IS 62-20742
 DS
 OR in library
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0 697 SU Science Process Skills TY Curriculum Module CI Commission on Science Education of the American Association for the Advancement of Science (AAAS), 1967. SCIENCE - A PROCESS APPROACH. Part D. New York: Xerox Education Division. SE Science - A Process Approach (SAPA) TI SCIENCE - A PROCESS APPROACH. Part D AU Commission on Science Education of the American Association for the Advancement of Science (AAAS) AF American Association for the Advancement of Science (AAAS) PU Xerox Education Division LO New York DP 1967 IL b&w photos, line drawings, charts AV out of print: SAPA II from Delta AL 3 RL 3.4.5 DS science process skills : measurement : classification : change : inference ; prediction ; variables ; plants ; magnets ; forces and motions ; maps : mapping AN SCIENCE - A PROCESS APPROACH, PART D introduces third grade students to the use of variables. Children learn to describe relative position and motion, evaporation, mapping, forces, plant growth, and other phenomena, all in terms of variables. Inference and prediction continue in this unit, as well. There are twenty-two activities with detailed instructions for teacher behavior and evaluation. Science

TN 22 exercises, 30 minutes to several weeks of observation

background information is sparse.

MT kit from Delta

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NO 685
DE March 29, 1988
SU Nature
; Sea
CI Yonge, C.M., 1963. THE SEA SHORE. New York: Atheneum.
SE
TI THE SEA SHORE
AU Yonge, C.M.
AF
PU Atheneum
LO New York
DP 1963
PG 326
 IL b&w illustrations
 BI no
 IS 63-13688
 DS
 OR in library
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686
 Z March 29, 1988
SU Anatomy
TY
CI Balestrino, Philip, 1971. THE SKELETON INSIDE YOU. New York: A
Harper Trophy Book, Harper & Row, Publishers.
TI THE SKELETON INSIDE YOU
AU Balestrino, Philip
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1971
PG 34
IL color illustrations
BI no
IS 0-06-445039-2
DS
OR in library
NO 687
DE March 28, 1988
SU Anatomy
TY
CI Cobb, Vicky, 1986. INSPECTOR BODYGUARD, Patrols the Land of U. New
York: Julian Messner, Published by Simon & Schuster, Inc.
TI INSPECTOR BODYGUARD, Patrols the Land of U
AU Cobb, Vicky
AF
PU Julian Messner, Published by Simon & Schuster, Inc.
LO New York
DP 1986
PG 125
IL color illustrations
IS 0-671-63260-4
DS
OR in library
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0 688
DE March 29, 1988
SU Anatomy
; Evolution
CI Cole, Joanna, 1987. THE HUMAN BODY: How We Evolved. New York:
William Morrow & Company, Inc.
TI THE HUMAN BODY: How We Evolved
AU Cole, Joanna
 PU William Morrow & Company, Inc.
 LO New York
 DP 1987
 PG 63
 IL b&w illustrations
 BI no
 IS 0-688-06719-0
  DS
  OR in library
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NO 689
DE March 29, 1988
SU Anatomy
TY
CI Goldin, Augusta, 1966. STRAIGHT HAIR, CURLY HAIR. New York: A
Harper Trophy Book, Harper & Row, Publishers.
SE A Let's Read and Find Out Book
TI STRAIGHT HAIR, CURLY HAIR
AU Goldin, Augusta
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1966
PG 34
IL color illustrations
BI no
IS 0-06-445037-6
DS
OR in library
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NO 690
DE March 29, 1988
SU Anatomy
TY
CI National Geographic Society, 1986. THE INCREDIBLE MACHINE.
Washington, DC: The National Geograpic Society.
TI THE INCREDIBLE MACHINE
AU National Geographic Society
AF
PU The National Geographic Society
LO Washington, DC
DP 1986
PG 384
IL b&w photos and illustrations
BI yes
IS
DS
OR in library
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```
NO 691
 DE March 29, 1988
 SU Anatomy
 TY
 CI Showers, Paul, 1980. NO MEASLES, NO MUMPS FOR ME. New York:
 Thomas Y. Crowell.
 SE A Let's Read and Find Out Book
 TI NO MEASLES, NO MUMPS FOR ME
 AU Showers, Paul
 AF
 PU Thomas Y. Crowell
· LO New York
 DP 1980
 PG 34
 IL b&w and color illustrations
 BI no
 IS 0-690-04205-1
 DS
 OR in library
 NO 684
 DE March 29, 1988
 SU Nature
 ; Oceanography
 CI Sipiera, Paul P., 1987. I CAN BE AN OCEANOGRAPHER. Chicago:
 Childrens Press.
 TI I CAN BE AN OCEANOGRAPHER
 AU Sipiera, Paul P.
 AF
 PU Childrens Press
 LO Chicago
 DP 1987
 PG 32
 IL color photos
 BI no
 IS 0-516-01905-8
 DS
 OR in library
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NO 692
DE March 29, 1988
SU Anatomy
CI Showers, Paul, 1967. A DROP OF BLOOD. New York: A Harper Trophy
Book, Harper & Row, Publishers.
SE A Let's Read and Find Out Book
TI A DROP OF BLOOD
AU Showers, Paul
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1967
PG 34
IL b&w and color illustrations
BI no
IS 0-06-445030-9
DS
OR in library
NO 693
DE March 29, 1988
SU Anatomy
TY
CI Showers, Paul, 1967. WHAT HAPPENS TO A HAMBURGER. New York: A
Harper Trophy Book, Harper & Row, Publishers.
SE A Let's Read and Find Out Book
TI WHAT HAPPENS TO A HAMBURGER
AU Showers, Paul
AF
PU A Harper Trophy Book, Harper & Row, Publishers
LO New York
DP 1970
PG 32
IL color illustrations
BI no
IS 0-06-445013-9
DS
OR in library
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## NO 698 SU Science Process Skills TY Curriculum Module CI Commission on Science Education of the American Association for the Advancement of Science (AAAS), 1967. SCIENCE - A PROCESS APPROACH. Part R. New York: Xerox Education Division. SE Science - A Process Approach (SAPA) TI SCIENCE - A PROCESS APPROACH. Part E AU Commission on Science Education of the American Association for the Advancement of Science (AAAS) AF American Association for the Advancement of Science (AAAS) PU Xerox Education Division LO New York DP 1967 IL b&w photos, line drawings, charts AV out of print: SAPA II from Delta AL 4 RL 4.5.6 DS science process skills : hypothesis ; inference ; guinea pigs ; electricity : mold ; plants ; sensory perception

; chemistry
; reactions
; variables

; forces and motions

AN In SCIENCE - A PROCESS APPROACH, PART E, fourth grade students learn to formulate and test hypotheses, to interpret data, and to define operationally. Using observation and inference skills and building on prior experience working with variables, children investigate forces and motions, electrical circuits, cells, sensory perception, chemical reactions, the behavior of guinea pigs, and mold growth and moisture loss in plants. There are twenty three lessons, each of which contains explicit information as to what the teacher should do and say to facilitate classroom activities. Evaluation questions are included. TN 22 exercises, 30 minutes to several weeks of observation MT kit from Delta

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NO 699
SU Science Process Skills
TY Curriculum Module
CI Commission on Science Education of the American Association for the
Advancement of Science (AAAS), 1967. SCIENCE - A PROCESS APPROACH.
Part F. New York: Xerox Education Division.
SE Science - A Process Approach (SAPA)
TI SCIENCE - A PROCESS APPROACH. Part F
AU Commission on Science Education of the American Association for the
Advancement of Science (AAAS)
AF American Association for the Advancement of Science (AAAS)
PU Xerox Education Division
LO New York
DP 1967
IL b&w photos, line drawings, charts
BI yes
AV out of print: SAPA II from Delta
AL 5
RL 5,6,7
DS science process skills
; ratios
; magnets
; gravity
; topography
; maps
; mapping
; contour maps
; life cycles
; animal behavior
; sensory perception
; plants
; measurement
; chemistry
; reactions
AN In SCIENCE - A PROCESS APPROACH, PART F, fifth grade students hone
the science process skills that have been introduced through earlier
SAPA experiences. They apply their skills to study of the earth, its
physical features, and magnetic properties; to investigation of life
cycles and behavior; and to experimentation with chemical reactions,
ratios and mathematical probabilities. There are twenty four exercises
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accompanied by detailed instructions for the teacher. Evaluation

TN 22 exercises, 30 minutes to several weeks of observation

questions are included.

MT kit from Delta

NO 700 SU Science Process Skills TY Curriculum Module CI Commission on Science Education of the American Association for the Advancement of Science (AAAS), 1967. SCIENCE - A PROCESS APPROACH. Part G. New York: Xerox Education Division. SE Science - A Process Approach (SAPA) TI SCIENCE - A PROCESS APPROACH. Part G AU Commission on Science Education of the American Association for the Advancement of Science (AAAS) AF American Association for the Advancement of Science (AAAS) PU Xerox Education Division LO New York DP 1967 IL b&w photos, line drawings, charts AV out of print: SAPA II from Delta AL 6 RL 6,7,8 DS science process skills ; sensory perception ; hypothesis : inference ; plants : chemistry : reactions ; forces and motions ; mass : density ; optical illusions ; light ; fermentation ; chromatography ; moon : astronomy AN SCIENCE - A PROCESS APPROACH, PART G focuses on experimentation, incorporating all the science process skills taught in earlier units. Sixth grade students formulate hypotheses, carry out experiments, and intrepret data resulting from investigations of sensory perception, plant growth, chemical reactions, forces and motions, mass, and density. There are instructions for twenty-two lessons, accompanied by suggestions for evaluation. TN 22 exercises, 30 minutes to several weeks of observation

MT kit from Delta

Tedorer dade dade 4/52

NO 701

DE March 9, 1988

SU Pedagogy

TY Essays

CI Aicken, Frederick, 1984. THE NATURE OF SCIENCE. Portsmouth, NH:

Heinemann Educational Books.

TI THE NATURE OF SCIENCE

AU Aicken, Frederick

PU Heinemann

LO Portsmouth, NH

DP 1984

PG 136

IL b&w drawings and diagrams

BI yes

IS 0-435-54020-3

AV in print

PR \$15.00 March, 1988

AL teacher resource

DS experiments

; models

; instructional strategies

; scientific reasoning

; science and society

; scientific literacy

; social influences

; teaching strategies

; integration

AN THE NATURE OF SCIENCE offers a personal look at science and how it affects the way we think and behave. The author discusses how the readers' views of science may be expanded to include art, history and the world around us. Educators can use this book as a methods text, to employ the suggested strategies in classrooms. The goal is to "demystify" science, put it into the context of the everyday world, and present a more balanced approach to the study of this broad subject. A section on suggestions for further reading is valuable for references and ideas.

IN THE NATURE OF SCIENCE

traclaco

NO 702

DE March 9, 1988

SU Pedagogy

TY science methods text

CI Osborne, Roger and Peter Freyberg, 1985. LEARNING IN SCIENCE: THE

IMPLICATIONS OF CHILDREN'S SCIENCE. Portsmouth, NH: Heinemann

Educational Books.

TI LEARNING IN SCIENCE: THE IMPLICATIONS OF CHILDREN'S SCIENCE

AU Osborne, Roger

; Freyberg, Peter

AF Learning in Science Project, University of Waikato

PU Heinemann

LO Portsmouth, NH

DP 1985

PG 198

IL b&w drawings, charts and diagrams

BI yes

IS 0-86863-275-9

LC Q181.083 1985 372.3'5 84-27915

AV in print March, 1988

PR \$15.00

AL teacher resource

DS elementary science methods

; preconceptions

; middle school science methods

; metagognition

; secondary science methods

; integrated curriculum

; language of science

AN LEARNING IN SCIENCE describes the ways in which children learn science. The authors discuss the ideas that children bring with them to the science experience, how these ideas are communicated and received, and how these conceptions can be used as building blocks for new learning. The role assigned by the authors to the science teacher is broad yet comfortable and an entire section of the book delineates the teacher as a guide, motivator, diagnostician, innovator, experimenter, and researcher. The appendices provide additional information about children, educators, and science. A list of related resources is included.

IN LEARNING IN SCIENCE

Pedio Comboso

NO 703 DE March 9, 1988 SU Pedagogy ; children's learning TY elementary science methods text CI Ed. Harlen, Wynne, 1985. PRIMARY SCIENCE...TAKING THE PLUNGE. Portsmouth, NH: Heinemann Educational Books. TI PRIMARY SCIENCE ... TAKING THE PLUNGE AU Elstgeest, Jos ; Harlen, Wynne ; Jelly, Sheila ; Osborne, Roger ; Symington, David PU Heinemann LO Portsmouth, NH **DP 1985** PG 116 IL b&w charts, graphs and diagrams BI yes IS 0-435-57350-0 AV in print March, 1988 PR \$15.00 AL teacher resource DS elementary science methods ; preconceptions ; affective domain ; attitudes ; cognitive domain ; questioning techniques ; instructional strategies ; language of science

AN PRIMARY SCIENCE...TAKING THE PLUNGE is a collection of articles that may be read in sequence or as the subject of each relates to the reader's own priorities and concerns. The authors recognize that science is an important vehicle through which children can develop mental and manipulative skills concurrently with attitudes about the world around them. Particular emphasis is placed on the teacher's role in this learning process, for how an activity is carried out is often more important than its content. This book presents well-researched ideas that will benefit any educator interested in encouraging children to build on their own experiences as they learn science.

IN PRIMARY SCIENCE...TAKING THE PLUNGE

NO 704 DE March 17, 1988 SU Pedagogy TY science methods text CI Samples, Bob, Bill Hammond, and Bernice McCarthy, 1985. 4MAT AND SCIENCE -TOWARDS WHOLENESS IN SCIENCE EDUCATION. Barrington, IL: Excel, Inc. TI 4MAT AND SCIENCE - TOWARDS WHOLENESS IN SCIENCE EDUCATION AU Samples, Bob ; Hammond, Bill ; McCarthy, Bernice PU Excel LO Barrington, IL DP 1985 PG 160 IL bow photos, charts, and drawings BI yes IS 0-9608992-2-7 AV in print March, 1988 PR \$12.95 AL teacher resource DS elementary science methods : 4Mat ; learning styles ; right brain/left brain ; geology ; clouds ; plants ; mapping ; life science ; earth science ; science process skills ; instructional strategies ; space ; biology ; astronomy ; weather ; teaching strategies ; curriculum development AN Many learning styles are effective in the acquisition of skills and knowledge. In this book, the authors examine four different learning styles and methods that educators may use to teach to the variety of

children encountered in an elementary classroom. Included are concrete examples of how to apply these teaching skills. Specific science lessons about rocks, plants, galaxies, and mapping are excellent models for writing appropriate science units. The original text, THE 4MAT SYSTEM, (Samples, Bob, Bill Hammond, and Bernice McCarthy, 1985. 4MAT AND SCIENCE - TOWARDS WHOLENESS IN SCIENCE EDUCATION. Barrington, IL: Excel, Inc.) offers more philosophical detail and additional sample lessons in science and other curriculum areas.

RE THE 4MAT SYSTEM by Bernice McCarthy

IN 4MAT AND SCIENCE - TOWARDS WHOLENESS IN SCIENCE EDUCATION

NO 705 DE March 17, 1988 SU pedagogy TY elementary science methods text CI Carin, Arthur A., and Robert B. Sund, 1985. TEACHING MODERN SCIENCE. Columbus, OH: Charles E. Merrill Publishing Co. TI TEACHING MODERN SCIENCE AU Carin, Arthur A. ; Sund, Robert B. PU Charles E. Merrill Publishing Co. LO A Bell & Howell Company, Colombus, OH 43216 DP 1985 PG 324 IL b&w illustrations, charts, and photographs BI ves IS 0-675-20221-3 LC 84-42911 AV in print PR \$21.95 March, 1988 AL teacher resource DS elementary science methods ; Piaget ; evaluation ; questioning techniques ; activity-based science ; creativity ; critical thinking ; integration ; computer technology : guided discovery : individualized instruction

AN TEACHING MODERN SCIENCE suggests that the learning of science is ideally suited for the student's active participation in the education process. This book will help a teacher to explore many topics in science, decide which to teach and why, and suggest practical methods for the planning and implementation of the guided discovery approach to teaching science. The ideas presented in this book are applicable at all grade levels and for children of varying abilities. This methods text has extensive and useful appendices. The following information is included: historical summary of science education, elementary science curriculum projects, community sources for supplies and equipment, commercial suppliers, planning a learning center, professional books, science education periodicals, professional societies, noncommercial sources for organisms, how to care for various animals, free and inexpensive materials, research studies of the relationship between science and language/reading development, etc.

Redcoor.

NO 705 DE March 17, 1988 SU Pedagogy TY science methods text CI Carin, Arthur A., and Robert B. Sund, 1985. TEACHING MODERN SCIENCE. Columbus, OH: Charles E. Merrill Publishing Co. TI TEACHING MODERN SCIENCE AU Carin, Arthur A. ; Sund, Robert B. PU Merrill LO Columbus, OH DP 1985 PG 324 IL b&w illustrations, charts, and photographs BI yes IS 0-675-20221-3 LC 84-42911 AV in print March, 1988 PR \$21.95 AL teacher resource DS elementary science methods ; Piaget ; evaluation ; questioning techniques ; critical thinking ; activity-based instruction

; individualized instruction AN TEACHING MODERN SCIENCE suggests that the learning of science is ideally suited for the student's active participation in the education process. This book will help a teacher to explore many topics in science, decide which to teach and why, and devise practical methods for planning and implementing a guided discovery approach to teaching science. The ideas presented in this book are applicable to all grade levels and to children of varying abilities. There are extensive and useful appendices containing the following information: historical summary of science education, elementary science curriculum projects, community sources for supplies and equipment, commercial suppliers, ways to plan a learning center, professional books, science education periodicals, professional societies, noncommercial sources for organisms, ways to care for various animals, free and inexpensive materials, research studies of the relationship between science and language/reading development, and more.

IN TEACHING SCIENCE METHODS

; integrated curriculum

; computers

NO 706 DE March 17, 1988 SU pedagogy TY elementary science methods text CI Carin, Arthur A., and Robert B. Sund, 1985. TEACHING SCIENCE THROUGH DISCOVERY. Columbus, OH: Charles E. Merrill Publishing Co. TI TEACHING SCIENCE THROUGH DISCOVERY AU Carin, Arthur A. ; Sund, Robert B. PU Charles E. Merrill Publishing Co. LO A Bell & Howell Company, Columbus, OH 43216 DP 1985 PG 502 IL b&w charts, illustrations, and photographs BI ves IS 0-675-20387-2 LC 84-42912 AV in print PR \$29.95 March, 1988 AL teacher resource DS elementary science methods ; Piaget ; evaluation ; guided discovery ; questioning techniques ; activity-based science ; creativity : critical thinking ; individualized instruction ; integration

; computer technology

AN This elementary science methods text will enrich science instruction for the teacher and the children. Guided discovery teaching/learning is the approach offered by the authors. It capitalizes on the students's natural curiosity about the world around them and solicits their active involvement in the learning process. The beginning chapters discuss the what and why of science - what topics to teach and the rationale to accompany these decisions. Following chapters explain how to make the classroom an exciting place by using fun methods of investigation through scientific processes. The ideas suggested in this text are applicable to children of all grade levels and abilities. Actual activities for living sciences, environmental sciences and physical sciences are included. The authors seem to have a true understanding of the role of elementary school teachers and the challenges that they face each day. Excellent information in the appendices.

Dodage - de taleace 4/2-

DE March 17, 1988 SU Pedagogy TY science methods text CI Carin, Arthur A., and Robert B. Sund, 1985. TEACHING SCIENCE THROUGH DISCOVERY. Columbus, OH: Charles E. Merrill Publishing Co. TI TEACHING SCIENCE THROUGH DISCOVERY AU Carin, Arthur A. ; Sund, Robert B. PU Merrill LO Columbus, OH **DP 1985** PG 502 IL bow charts, illustrations, and photographs BI yes IS 0-675-20387-2 LC 84-42912 AV in print March, 1988 PR \$29.95 AL teacher resource DS elementary science methods ; Piaget ; evaluation ; guided discovery ; questioning techniques ; activity-based science ; science process skills ; critical thinking ; individualized instruction ; integrated curriculum ; computers

NO 706

AN This elementary science methods text will enrich science instruction for the teacher and the children, through guided discovery. It capitalizes on students' natural curiosity about the world around them and solicits their active involvement in the learning process. The beginning chapters discuss the what and why of science - - what topics ought to be taught and the author's rationale. Subsequent chapters explain how to make the classroom an exciting place by using fun methods of scientific investigation. The ideas suggested in this text are applicable to children of all grade levels and abilities. Activities for life science and physical science are included. The authors seem to display a real understanding of the role of elementary school teachers and the challenges that they face each day. Excellent information in the appendices.

IN TEACHING SCIENCE THROUGH DISCOVERY

NO 707 E March 17, 1988 SU pedagogy TY elementary science methods text CI Cain, Sandra E., and Jack M. Evans, 1984. SCIENCING. Columbus OH: Charles E. Merrill Publishing Co. TI SCIENCING AU Cain. Sandra E. ; Evans, Jack M. PU Charles E. Merrill Publishing Co. LO A Bell & Howell Company, Columbus, OH 43216 **DP 1984** PG 398 IL b&w photographs, diagrams and charts IS 0-675-20055-5 LC 83-61940 AV in print PR \$21.95 March, 1988 AL teacher resource DS elementary science methods ; involvement approach ; process skills ; inquiry : ESS : SCIS ; SAPA II : textbooks : trade books : objectives ; instuctional strategies ; evaluation ; questioning techniques ; safety ; computer technology ; integration with math ; individualized instruction AN To provide the teacher with insight into the teaching and learning of science, the authors devote the first part of the text to identifying the nature of science, the nature of learning, and the nature of the child. The second section of the book describes the science curricula available to the elementary school teacher, including kits, textbooks, a text-kit combination, use of tradebooks, and specific elementary science projects. The remainder of the text

presents ideas for implementing an effective science program, where children are actively involved and the best of microcomputers and math

curricula are integrated. Each chapter within the sections has a summary and a bibliography. This book represents a broad look at the options available when choosing a science program for your classroom.

Poderceau dode by a

NO 707 DE March 17, 1988 SU Pedagogy TY science methods text CI Cain, Sandra E., and Jack M. Evans, 1984. SCIENCING. Columbus OH: Charles E. Merrill Publishing Co. TI SCIENCING AU Cain, Sandra E. ; Evans, Jack M. PU Merrill LO Columbus, OH **DP 1984** PG 398 IL b&w photos, diagrams and charts BI yes IS 0-675-20055-5 LC 83-61940 AV in print March, 1988 PR \$21.95 AL teacher resource DS elementary science methods : process skills : textbooks ; trade books : instructional strategies ; evaluation ; questioning techniques

: curriculum implementation

; teaching strategies

; integrated curriculum

; safety

; computers

; mathematics

; individualized instruction
AN To provide the teacher with insight into the teaching and learning of science, the authors devote the first part of the text to identifying the nature of science, the nature of learning, and the nature of the child. The second section of the book describes the science curricula available to the elementary school teacher, including kits, textbooks, a text-kit combination, use of tradebooks, and specific elementary science projects. The remainder of this volume presents ideas for implementing an effective science program, where children are actively involved and the best of microcomputers and math curricula are integrated. Each chapter within the sections has a summary and a bibliography. This book represents a broad look at the options available when choosing a science program for your classroom. IN SCIENCING

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NO 708
DE March 18, 1988
SU pedagogy
TY elementary science methods text
CI Blough, Glenn O., and Julius Schwartz
TI ELEMENTARY SCHOOL SCIENCE AND HOW TO TEACH IT
AU Blough, Glenn O.
; Schwartz, Julius
PU Holt, Rinehart and Winston, Inc.
LO New York, NY
DP 1984
PG 670
IL b&w photographs, diagrams and charts
IS 0-03-062866-0
LC 83-22537
AV in print
PR $30.95 March, 1988
AL teacher resource
DS elementary science methods
; objectives
; materials
; activities
; earth science
; astronomy
; weather
; nature studies
; seasons
; animals
; human body
; plants
; conservation
; physical science
; atoms
; molecules
; fire
; heat
; energy
; machines
; atomic energy
; magnetism
; electricity
; sound
; light
; flight
; space trave!
; instructional strategies
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Pedagogy Datab. se

NO 708 **DE March 18, 1988** pedagogy science methods text \_\_ Blough, Glenn O., and Julius Schwartz, 1984. ELEMENTARY SCHOOL SCIENCE AND HOW TO TEACH IT. New York, NY: Holt, Rinehart, and Winston, Inc. TI ELEMENTARY SCHOOL SCIENCE AND HOW TO TEACH IT AU Blough, Glenn O. ; Schwartz, Julius PU Holt, Rinehart and Winston LO New York, NY DP 1984 PG 670 IL b&w photos, diagrams and charts BI yes IS 0-03-062866-0 LC 83-22537 AV in print March, 1988 PR \$30.95 AL teacher resource DS elementary science methods ; behavioral objectives ; science process skills : field trips ; computers ; instructional strategies textbooks metrics individualized instruction ; gifted and talented students ; questioning techniques ; mainstreaming ; earth science ; geology ; rocks ; minerals ; oceans : mountains ; earthquakes ; volcanoes ; erosion ; sun ; planets ; solar system ; gravity : moon : eclipses ; temperature ; day and night ; seasons ; stars : constellations ; air weather

climate

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NO 760
 DE April 7, 1988
 SU Biology
 TY Teacher's Guide
 CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
 Science, 1979. OBIS SAMPLER. Nashua, NH: Delta Education.
 SE Outdoor Biology Instructional Strategies (OBIS)
 TI OBIS SAMPLER
 AU Outdoor Biology Instructional Strategies (OBIS)
. PU Delta Education
 LO Nashua, NH
 DP 1979
 PG [20]
 IL b&w photographs and line drawings
 BI no
 AV in print
 PR $11.00 April, 1988
 AL 5,6,7,8,9,10
 RL 4,5,6,7,8
 DS elementary science methods
 ; integrated curriculum
 : nature
 ; animals
 ; seeds
 : fruits
 ; adaptation
 ; habitats
 ; aquatic animals
 ; food chains
 ; wind
 AN The OBIS SAMPLER module includes four activities, entitled Food
 Chain Game, Seed Dispersal, Sticklers, and Water Breathers. Children
 are involved in role playing animals in a food chain, dispersing seeds,
 investigating where organisms live, and discovering the currents
 created by aquatic animals when they move and breathe. Each folio
 provides background information, a list of materials needed,
 preparation hints, step by step directions for the activities, and
 possible extensions. The folio is easy to read and includes useful
 illustrations and diagrams.
 TN informal, 4-5 sessions, 45-60 minutes each
 MT locally available
 OR in library
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NO 761
 DE April 7, 1988
 SU Biology
 TY Teacher's Guide
 CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
 Science, 1979, 1980. ADAPTATIONS. Nashua, NH: Delta Education.
 SE Outdoor Biology Instructional Strategies (OBIS)
 TI ADAPTATIONS
 AU Outdoor Biology Instructional Strategies (OBIS)
. PU Delta Education
 LO Nashua, NH
 DP 1979,1980
 PG [42] + 20pp pond guide
 IL baw photographs and line drawings
 BI no
 AV in print
 PR $15.60 April, 1988
 AL 5,6,7,8,9,10
 RL 4,5,6,7,8
 DS elementary science methods
 ; integrated curriculum
 ; seeds
 ; animals
 ; plants
 : deserts
 : fruits
 ; water
 ; aquatic animals
 ; food gathering
 ; adaptations
 ; prey
 ; water current
 ; habitats
 : environments
 AN The ADAPTATIONS module consists of seven activity folios, entitled
 Animal Movement in Water, Desert Water Keepers, Food Grab, Hold It,
 Invent An Animal, Invent A Plant, and Seed Dispersal. Children
 discover how aquatic animals move through water and how different
 desert plants conserve water; investigate the food gathering
 adaptations of animals and the water holding power of organisms; design
 and construct animals and plants; and modify seeds and fruits for
 dispersal. Each folio contains background information, preparation
 hints, a list of materials needed, directions for the activities, and
 possible extensions. The folio is well organized and has useful
 illustrations and diagrams. The OBIS POND GUIDE supplements this
 module.
 TN informal, 8-10 sessions, 45-60 minutes each
 MT locally available
 OR in library
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NO 761a
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980. ADAPTATIONS. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI ADAPTATIONS
AU Outdoor Biology Instructional Strategies (OBIS)
'PU Delta Education
LO Nashua, NH
DP 1979, 1980
PG [42] +20pp pond guide
IL b&w photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS elementary science methods
; integrated curriculum
; seeds
: animals
; plants
: deserts
; fruits
; water
; aquatic animals
: food gathering
; adaptations
; prey
: water current
: habitats
: environments
AN The ADAPTATIONS module consists of seven activity folios, entitled
Animal Movement in Water, Desert Water Keepers, Food Grab, Hold It,
Invent An Animal, Invent A Plant, and Seed Dispersal. Children
discover how aquatic animals move through water and how different
desert plants conserve water; investigate the food gathering
adaptations of animals and the water holding power of organisms; design
and construct animals and plants; and modify seeds and fruits for
dispersal. Each folio contains background information, preparation
hints, a list of materials needed, directions for the activities, and
possible extensions. The folio is well organized and has useful
illustrations and diagrams. The OBIS POND GUIDE supplements this
module.
TN informal, 8-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 762
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. ANIMAL BEHAVIOR. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI ANIMAL BEHAVIOR
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [42] + 26pp lawn guide
IL bow photographs and line drawings
BI no
AV in print
PR $17.15 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS elementary science methods
; integrated curriculum
: ants
: birds
; animal behavior
; jays
; isopods
; spiders
; insects
: lizards
: structure
: webs
; light
AN The ANIMAL BEHAVIOR module includes eight activities, entitled Ants,
For the Birds, Isopods, Jay Play, Leapin' Lizards, Scram or Freeze, The
Old White Sheet Trick, and Web It. Children are involved in
investigating the behavior, structure, and interaction of ants,
pigeons, ducks, jays, isopods, lizards, animals that live under logs
and rocks, flying insects, and spiders. Through conducting light
related experiments, spraying webs with mist, playing a "freeze" and
"scram" game, constructing a "lizard rig," salting the jays preferred
color food, and observing a variety of animals, children discuss and
make predictions about animal behavior. Each activity folio contains
background information, preparation hints, a list of materials needed,
directions for the activites, and possible extensions. The folio is
well organized and has useful illustrations. The OBIS LAWN GUIDE
supplements this module.
TN informal, 8-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 763
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. AQUATIC ANIMAL BEHAVIOR. Nashua, NH:
Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI AQUATIC ANIMAL BEHAVIOR.
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [40] + 20pp pond guide
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS elementary science methods
; integrated curriculum
; animals
; aquatic animals
; damselflies
; dragonflies
; grasshoppers
; frogs
; beach hoppers
; marine animals
: water striders
: animal behaviors
: adaptations
AN The module AQUATIC ANIMAL BEHAVIOR consists of seven activities,
entitled Animal Movement in Water, Attract a Fish, Damsels and Dragons,
Hopper Circus, Salt Water Revival, Water Breathers, and Water Striders.
Children are engaged in discovering how aquatic animals move through
water; fishing with different baits and lures; uncovering clues to how
dragonflies and damselflies react to flying decoys; using Action Cards
to learn about hopping animals; creating artificial high tides;
investigating the currents made by animals when they breathe and move;
and exploring the movement and feeding behaviors of water striders.
Each folio contains background information, preparation hints, a list
of materials needed, directions for the activities, and possible
extensions. The folio is well organized and has useful illustrations
and diagrams. The OBIS POND GUIDE supplements this module.
TN informal, 8-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 764
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980. BACKYARD. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI BACKYARD
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980
PG [42] +20pp pond guide
IL baw photographs and line drawings
BI no
AV in print
PR $18.65 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS elementary science methods
; integrated curriculum
; birds
; flowers
 ; animals
 ; isopods
 ; pollination
 ; prey
 : environments
 ; adaptation
 ; habitats
 ; organisms
 ; food gathering
 ; ponds
 ; water holes
 ; soils
AN The BACKYARD module includes seven activities, entitled Birdfeeder,
Flower Powder, Food Grab, Invent An Animal, Isopods, Sticklers, Super
Soil, and Water Holes to Mini-Ponds. Children build a bird feeder and
observe bird behaviors; simulate flower pollination; design devices
that can capture prey; create an animal compatible with the local
environment; investigate isopods; compare soils; monitor water holes;
and play a simulation game about habitat and distribution and relate
these concepts to real organisms. Each activity folio contains
background information, preparation hints, a list of materials needed,
directions for the activities, and possible extensions. The folio is
well organized and has useful illustrations and diagrams. The OBIS
POND GUIDE supplements this module.
TN informal, 8-12 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 765
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979,1980. BIO-CRAFTS. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI BIO-CRAFTS
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979,1980
PG [50]
IL baw photographs and line drawings
AV in print
PR $18.65 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS art
; crafts
: birds
; bugs
; worms
; sun prints
; organisms
; animals
; plants
; spiders
; habitats
; adaptations
; elementary science methods
; integrated curriculum
AN Attention!; Birds Nests; Bugs, Worms and Others; Environmental Sun
Prints; Food Grab; Invent An Animal; Invent A Plant; Seed Dispersal;
and Web Weavers are the nine activities included in the BIO-CRAFTS
module of the OBIS series. Children are involved in creating
eye-catching designs, birds nests, make-believe organisms, photogram
records of living and non-living objects, devices to catch prey,
animals, plants, and spider webs. After design and construction are
completed, the children observe the effect of these projects and
parallel materials in nature and further study the behaviors of the
animals and plants that inhabit each environment. The format of each
activity folio is well organized and has useful illustrations and
diagrams. Background information, preparation hints, a list of
materials needed, directions for the activities, and possible
extensions are include in each folio.
TN informal, 7-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 766
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1982. BREAKWATERS AND BAYS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI BREAKWATERS AND BAYS
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1982
PG [41] +20 pp pond guide
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS organisms
; rocky intertidal zones
: clams
: population census
; crawdads
; birds
; food gathering
; oil spill
: simulations
; rocks
: environments
; adaptations
; aquatic animals
; elementary science methods
; integrated curriculum
AN The BREAKWATERS AND BAYS module consists of seven activities,
entitled Beach Zonation, Clam Hooping, Crawdad Grab, Flocking To Food,
OBIS Oil Spill, Rock Pioneers, and Water Breathers. Children
investigate the distribution of organisms in a rocky intertidal zone,
the clams' natural history, and the currents created by aquatic animals
when they move and breathe. Opportunities to build crawdad traps, and
artificial "beaks" are the focus of two of the activities. Additional
experiences include using popcorn to simulate an oil spill and assess
its impact on the environment and conducting a population census of
squirting clams. Each folio provides background information, a list of
materials needed, preparation hints, directions for the activities, and
possible extensions. The folio is easy to read and includes useful
illustrations and diagrams. The OBIS POND GUIDE supplements this
module.
TN informal, 6-8 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 767
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981, CAMPSITE, Nashua, NH; Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI CAMPSITE
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [30]
IL b&w photographs and line drawings
BI no
AV in print
PR $14.10
           April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS flies
; fly trap
; ants
; jays
; stalking
; light
: insects
; animals
; predators
; prey
; adaptations
; animal behavior
; elementary science methods
; integrated curriculum
AN A Better Fly Trap, Ants, Jay Play, Silent Stalking, The Old White
Sheet Trick, and Who Goes There? are the six activities that are
included in the CAMPSITE wodule. Children are engaged in investigating
the behavior of flies, ants, jays, night-flying insects, and other
animals. Activities specifically suited to night time experimentation
are using a flashlight and flourescent bait to find evidence of animal
activity; conducting light-related investigations to discover the
effects of light on insects; and playing a silent stalking game to
explore the importance of this skill to predators and of sound
detection to prey. Each activity folio provides background
information, preparation hints, a list of materials needed, directions
for the activities, and possible extensions. The folio is well
organized and has useful illustrations and diagrams.
TN informal, 7-9 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 768
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980. CHILD'S PLAY. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI CHILD'S PLAY
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980
PG [38] +20 pp pond guide
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS spiders
; spider webs
; aquatic plants
; aquatic animals
; sounds
; animals
; scavenger hunt
: environments
; prey
; plants
; food gathering
; organisms
; senses
; visual communication
; elementary science methods
; integrated curriculum
AN The CHILD'S PLAY module consists of seven activities, entitled
Attention!, Envirolopes, Food Grab, Gaming In The Outdoors, Sound Off!,
What Lives Here?, and Web Weavers. Children explore visual
communication; hunt for a variety of textures, colors, odors, and
evidence of organisms at a specific study site; create devices to
capture prey or gather plants; go on a scavenger hunt; simulate animal
sounds; observe and identify plants and animals at an aquatic site; and
using string, reproduce the intricacies of different spider webs. Each
guide contains background information, preparation hints, a list of
materials needed, directions for the activities, and possible
extensions. The folio is well organized and has useful illustrations
and diagrams. The OBIS POND GUIDE supplements this module.
TN informal, 8-12 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 769
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980. DESERT. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI DESERT
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980
PG [45] + 20 pp guide
IL bow photographs and line drawings
BI no
AV in print
PR $17.15 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS deserts
: water holes
 ponds
  environments
  plants
; animals
; lizards
; adaptations
; animal behavior
: interactions
; lichens
: habitats
; colors
; shapes
; scavenger hunts
; temperature
; elementary science methods
; integrated curriculum
AN The DESERT module consists of eight activities, entitled Cactus
Wheel, Cool It, Desert Hunt, Desert Water Keepers, Leapin' Lizards,
Lichen Looking, Terrestrial Hi-Lo Hunt, and Water Holes to Mini-Ponds.
These OBIS activities focus upon habitats and the adaptations of the
animals and plants within the desert, water hole, pond, and other
environments. Children determine the population densities of desert
plants; use the temperature variations at a specific site to try to
keep a "lizard" from getting too hot or cold; design OBIS scavenger
hunts; determine how different desert plants conserve water;
investigate lizard feeding behavior and interactions; search for
lichens; locate the warmest and coolest, wettest and driest, windlest
and calmest, and brightest and darkest sections of the environment and
note the animals and plants within each area; and monitor fertilized
and unfertilized water holes. Each activity folio contains background
information, preparation hints, a list of needed materials, directions
for the activities, and possible extensions. The folio is well
orgainized and has useful illustrations and diagrams. The OBIS POND
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GUIDE supplements this module.

TN informal, 8-12 sessions, 45-60 minutes each

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NO 770
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1981, 1982. FOREST. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI FOREST
AU Outdoor Biology Instructional Strategies (OBIS)
PW Delta Education
LO Nashua, NH
DP 1980, 1981, 1982
PG [41]
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS environments
; adaptations
; jays
; leaves
; lichens
 critters
 rotting logs
 trees
; food gathering
: animal behavior
: habitats
; tree rings
; growth patterns
; elementary science methods
; integrated curriculum
AN The FOREST module contains seven activity folios, entitled Jay Play,
Leaf Living, Lichen Looking, Litter Critters, Logs To Soil, Sawing
Away, and Tree Tally. Children learn about animals that live in a pile
of leaves, in the ground, and on or in rotten logs. They look for the
most common trees in an area and observe fallen logs to count tree
rings and study patterns of growth. Additional activities include
observing the habitats, shapes, and colors of lichens and discovering
the food-color preference of jays and altering the taste of favored
food to see if food-gathering behavior changes. Each activity folio
contains backgroun information, a list of needed materials, preparation
hints, directions for the activities, and possible extensions. The
folio, is well organized and has useful illustrations and diagrams.
TN informal, 8-11 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 771
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. FOR 8-TO-11-YEAR-OLDS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI FOR 8-TO-11-YEAR-OLDS
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [39] +26 pp lawn guide
IL b&w photographs and line drawings
BI no
AV in print
PR $18.65 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS ants
: minnows
; fish
: WOTES
 bugs
 insects
 animals
; isopods
; environments
; rotting logs
; rocks
; plants
: currents
: streams
; elementary science methods
; integrated curriculum
AN The FOR 8-TO-11-YEAR-OLDS module consists of nine activities,
entitled Ants; Attract A Fish; Bugs, Worms and Others; Great Steamboat
Race; Invent An Animal; Isopods; Junk-In-The-Box, Plant Hunt, and Scram
Or Freeze. Children are engaged in exploring the behavior of ants,
minnows, insects, isopods, animals that use people-made litter for food
or shelter, and animals that live under logs and rocks. Simulations
are created, games are played, collections are amassed, value
judgements are discussed, cork-steamboat races are conducted, and
animals are invented as the children experience these activities.
activity folio contains background information, a list of materials
needed, preparation hints, directions for the activities, and possible
extensions. The folio is well organized and has useful illustrations
and diagrams. The OBIS LAWN GUIDE supplements this module.
TN informal, 8-12 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 772
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. FOR LARGE GROUPS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI FOR LARGE GROUPS
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [25]
IL b&w photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS acorns
; squirrels
; food chains
; large group activities
; animals
; stalking
; predators
; prey
; animal sounds
; simulations
; games
; survival
; adaptations
: environments
; food gathering
; elementary science methods
; integrated curriculum
AN The FOR LARGE GROUPS module consists of six activities, entitled
Acorns, Food Chain Game, Invent An Animal, Population Game, Silent
Stalking, and Sound Off! All of these activities use a game or
simulation format for instruction. Children play a survival game and
study the winter food storage strategies of squirrels; investigate food
chains by assuming the roles of animals within a food chain;
participate in a feeding game to find out how many deer can survive in
a herd's environment; explore the importance of silent stalking skills
to predators and of sound detection to prey; and communicate secretly
to partners, using animal sounds. Each activity folio contains
background information, a list of needed materials, preparation hints,
directions for the activities, and possible extensions. The folio is
well organized and has useful illustrations and diagrams.
TN informal, 4-6 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 773
DE April 7, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. FOR SMALL GROUPS & FAMILIES. Nashua, NH:
Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI FOR SMALL GROUPS & FAMILIES
AU Outdoor Biology Instructional Strategies (OBIS)
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [40] +26 pp lawn guide
IL bew photographs and line drawings
BI no
AV in print
PR $17.15 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS small group instruction
; flies
; ants
: fish
; birds
; damselflies
; dragonflies
; environments
; animal behavior
; birdfeeders
; food gathering
; adaptations
: minnows
: lizards
: currents
; streams
: animals
; elementary science methods
; integrated curriculum
AN The SMALL GROUPS & FAMILIES module consists of eight activity
folios, entitled A Better Fly Trap, Ants, Attract A Fish, Birdfeeder,
Damsels and Dragons, Great Steamboat Race, Leaf Living, and Leapin'
          Small groups engage in using a "lizard rig" to investigate
the feeding behavior and interactions of lizards; hiding and navigating
in a pile of leaves to experience the environment of certain animals;
conducting cork boats in a race to discover the rate and direction of
currents in a stream; presenting flying decoys to damsel flies and
dragon flies to study perching behavior; constructing a birdfeeder to
observe bird behavior; fishing with a variety of baits and lures to
explore the behavior of minnows; and building fly traps to investigate
the behavior of flies. Each folio contains background information, a
list of needed materials, hints for lesson preparation, directions for
the activities, and possible extensions. The folio is well organized
and has useful illustrations and diagrams. The OBIS LAWN GUIDE
supplements this module.
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TN informal, 8-10 sessions, 45-60 minutes each

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NO 774
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980. GAMES AND SIMULATIONS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI GAMES AND SIMULATIONS
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1979, 1980
PG [32]
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS elementary science methods
; integrated curriculum
; games
; simulations
: adaptations
; temperature
: flowers
; pollimation
: senses
: animals
: food chains
: survival
; habitats
: distribution
; organisms
; variations
AN The GAMES AND SIMULATIONS module consists of seven activities,
entitled Cool It, Flower Powder, Follow The Scent, Food Chain Game,
Population Game, Sticklers, and Variation Game. By playing simple
games or enacting simulations, children try to keep a "thermometer
lizard" from overheating or getting too cold; use artificial bees and
flower models to investigate pollination; discover one way animals use
their sense of smell; assume the roles of animals in a food chain; find
out how many deer can survive in a herd's home range; learn about
habitat and distribution of organisms; and identify differences among
individuals. Each activity folio provides background information, a
list of materials needed, preparation hints, directions for the
investigations, and possible extensions. The folio is easy to read and
includes useful illustrations and diagrams.
TN informal, 6-8 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 775
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1981, 1982. HUMAN IMPACT. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI HUMAN IMPACT
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1980, 1981, 1982
PG [38] + 26pp lawn guide
IL b&w photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS environments
: impact
; adaptation
: animals
; organisms
; oil spills
; plants
; biological control
; mosquitoes
: predators
: humans
; elementary science methods
; integrated curriculum
AN The HUMAN IMPACT module consists of seven activities, entitled Can
Fishing, Junk-In-The-box, OBIS Oil Spill, Out of Control, Plants Around
A Building, Too Many Mosquitoes, and Trail Impact Study. Children
investigate how people and events impact upon the environment.
Students discover the kinds of animals that live in and on submerged
cans and people-made litter; use popcorn to simulate an oil spill;
observe the changes in a lawn released from human control; investigate
how the environment around a building affects the growth of plants;
learn about biological control by identifying predators that eat
mosquito larvae; and lay out the course of a foot path that has the
least impact on the study site. Each activity folio provides
background information, preparation hints, a list of needed materials,
directions for the activities, and possible extensions. The folio is
well organized and has useful illustrations and diagrams. The OBIS
LAWN GUIDE supplements this module.
TN informal, 8-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 776
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1981, 1982. LAWNS AND FIELDS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI LAWNS AND FIELDS
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1980, 1981, 1982
PG [50]
IL b&w photographs and line drawings
BI no
AV in print
PR $18.65 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS animals
; environments
; adaptations
; plants
; spiders
: stalking
; predators
; prey
; spider webs
; animal behavior
: plant eaters
; elementary science methods
: integrated curriculum
AN Animal Diversity, Animals In A Grassland, Hopper Herding, Mystery
Marauders, Plant Hunt, Roots and Shoots, Silent Stalking, Web It, and
Web Weavers are the nine activities that make up the LAWNS AND FIELDS
module. Children investigate the variety of animals that live in a
managed lawn and a weedy area, count and identify the different kinds
of insects discovered, and determine which of these are plant eaters;
simulate stalking skills, observe the behavior of spiders, and
replicate the intricacies of their webs.. Further study includes
determining the species of plants that grow in a particular study site,
and identifying "mystery plants." Each activity folio provides
background information, a list of needed materials, preparation hints,
directions for the activity, and possible extensions. The folio is
well organized and has useful illustrations and diagrams. The OBIS
LAWN GUIDE supplements this module.
TN informal, 8-12 sessions, 45-60 minutes each
MT locally available
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OR in library

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NO 777
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1982. NEIGHBORHOOD WOODS. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI NEIGHBORHOOD WOODS
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1980, 1982
PG [42]
IL bow photographs and line drawings
BI no
AV in print
PR $17.15 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS environments
: nests
: birds
: vines
; lichen
; plant eaters
; senses
: habitats
; variables
: wind
; temperature
; light
: moisture
; insects
: animals
; plants
; shrubs
: trees
; elementary science methods
; integrated curriculum
AN The NEIGHBORHOOD WOODS module consists of eight activities, entitled
Bird Nests, Creepers And Climbers, Lichen Looking, Mystery Marauders,
Sensory Hi-Lo Hunt, Shake It!, Snug As A Bug, and Swell Homes.
Children design bird nests, place them at a site, and try to locate and
identify each others' nests. Further investigations include looking at
the structure and climbing patterns of vines; learning about the
habitat, shapes, and colors of lichens; identifying plant eaters;
finding extremes of environmental variables; and constructing homes for
imaginary insects, retreiving animals from different trees, plants and
shrubs, and comparing the environments of both. Each activity folio
provides background information, preparation hints, a list of needed
materials, directions for the activities, and possible extensions.
folio is well organized and has useful illustrations and diagrams.
TN informal, 8-10 sessions, 45-60 minutes each
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MT locally available

MT locally available OR in library

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NO 778
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1981. NIGHTTIME. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI NIGHTTIME
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1980, 1981
PG [35] +20 pp pond guide
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS eyes
; nighttime
; environments
: aquatic animals
; light
; stalking
; predators
; prey
: sounds
; night-flying insects
: insects
: animal behavior
: spiders
; spider webs
; elementary science methods
: integrated curriculum
AN The NIGHTTIME module consists of seven activities, entitled Night
Eyes, Night Shine, Silent Stalking, Sound Off, The Old White Sheet
Trick, Web It, and Who Goes There? Children use the nighttime
environment to explore mysterious eyes, aquatic animals, the stalking
skills of predators, animal sounds, night-flying insects, and animals
active at night. Students participate in many activities centered on
how light affects the behavior of organisms. Each activity folio
provides background information, a list of needed materials,
preparation hints, directions for the activities, and possible
extensions. The folio is well organized and has useful illustrations
and diagrams. The OBIS POND GUIDE supplements this unit.
TN informal, 7-9 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 779
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1981, 1982. OUTDOOR STUDY TECHNIQUES. Nashua, NH:
Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI OUTDOOR STUDY TECHNIQUES
AU Outdoor Biology Instructional Strategies (OBIS), lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1980, 1981, 1982
PG [56] + 20 pp pond guide
IL b&w photographs and line drawings
BI no
AV in print
PR $20.20 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS bugs
: leaves
; organisms
; pigments
; plants
: mapping
; moisture
: plants
: animals
; insects
: colors
; chromotography
; habitats
: environments
; outdoor study techniques
; ponds
; elementary science methods
; integrated curriculum
AN Bean Bugs, Fly A Leaf, How Many Organisms Live Here?, Mapping A
Study Site, Moisture Makers, Pigment Puzzles, Plant Patterns, Shake
It!, Water Snails, and Who Goes There? are the ten activities included
in the OUTDOOR STUDY TECHNIQUES module. Children are involved in
investigations that include taking a census of a population of
organisms too numerous to count; flying and racing leaves to determine
which catch more wind; estimating the number of organisms living in a
small pond sample; mapping a study site; testing different leaves for
moisture content; exploring leaf and flower colors using
chromotography; investigating the insect population of trees, plants
and shrubs; discovering the snails' preferred habitats; and finding
evidence of animals active at night. Each activity folio provides
background information, a list of needed materials, preparation hints,
directions for the activities, and possible extensions. The folio is
well organized and has useful illustrations and diagrams. The OBIS
POND GUIDE supplements this unit.
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TN informal, 10-14 sessions, 45-60 minutes each

OR in library

NO 780 DE April 13, 1988 SU Biology TY Teacher's Guide CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of Science, 1980. PAVEMENT AND PARKS. Nashua, NH: Delta Education. SE Outdoor Biology Instructional Strategies (OBIS) TI PAVEMENT AND PARKS AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of Science . PU Delta Education LO Nashua, NH **DP 1980** PG [34] +26 pp lawn guide IL bow photographs and line drawings BI no AV in print PR \$17.15 April, 1988 AL 5,6,7,8,9,10 RL 4,5,6,7,8 DS ants : environments ; birds ; insects ; plants : animal sounds : habitats ; adaptations ; animal behavior ; photograms ; sun prints ; elementary science methods ; integrated curriculum AN The PAVEMENT AND PARKS module consists of eight activities, entitled Ants, Envirolopes, Environmental Sun Prints, For The Birds, Junk-In-The- Box, Plant Hunt, Plants Around A Building, and Sound Off! In this series of activities, children explore the environment to locate a variety of organisms, examine their behaviors and habitats, and record information in usable and creative ways. Students are involved in observing birds, ants, animals that live in people-made litter, and plants in a variety of settings. Each activity folio provides background information, a list of needed materials, preparation hints, directions for activities, and possible extensions. The folio is easy to understand and has useful illustrations and diagrams. The OBIS LAWN GUIDE supplements this module. TN informal, 6-8 sessions, 45-60 minutes each MT locally available OR in library

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NO 781
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981. PONDS AND LAKES. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI PONDS AND LAKES
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981
PG [48] + 20pp pond guide
IL bow photographs and line drawings
BI no
AV in print
PR
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS ponds
; pond life
; organisms
: minnows
; fish
; habitats
; environments
; animal behavior
; adaptations
; animals
; plants
; currents
; biological control
; aquatic animals
; elementary science methods
: integrated curriculum
AN The PONDS AND LAKES module consists of eight activities, entitled
Animal Movement In Water, Attract A Fish, Can Fishing, Habitats Of The
Pond, Too Many Mosquitoes, Water Breathers, Water Holes To Mini-Ponds,
and What Lives Here? While using these activities, children observe
and identify plants and animals that live in ponds, lakes, and water
holes. They study animal behavior and how changes in the environment
affect the lives of these organisms. Specific investigations include
using a variety of baits and lures to attract minnows, monitoring life
at a water hole or pond over a period of eight to ten weeks, and
finding predators that eat mosquito larvae. Each activity folio
provides background information, preparation hints, a list of needed
materials, directions for the activities, and possible extensions. The
folio is well organized and has useful illustrations and diagrams.
OBIS POND GUIDE supplements this unit.
TN informal, 8-12 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 782
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979. SCHOOLYARD. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI SCHOOLYARD
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1979
PG [39]
IL bow photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS flies
; fly traps
; food chains
: plants
; metrics
: measurement
: seeds
: habitats
; distribution
; seed dispersal
: environments
; variables
: animals
; elementary science methods
; integrated curriculum
AN A Better Fly Trap, Food Chain Game, Invent A Plant, Metric Capers,
Seed Dispersal, Sticklers, and Terrestrial Hi-Lo Hunt are the seven
activities included in the SCHOOLYARD module. Children are involved in
constructing a fly trap to observe the behavior of flies; role playing
animals in a food chain; creating new plants; measuring environmental
objects; discovering how seeds are adapted for dispersal; playing a
simulation game that introduces the concepts of habitat and
distribution; and considering a variety of environmental variables,
identifying specific sections of a study site. Each activity folio
provides background information, a list of needed materials,
preparation hints, directions for activities, and possible extensions.
The folio is well organized and has useful illustrations and diagrams.
TN informal, 8-10 sessions, 45-60 minutes each
MT locally available
OR in library
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NO 783 DE April 13, 1988 SU Biology TY Teacher's Guide CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of Science, 1979, 1980, 1981. SEASHORE. Nashua, NH: Delta Education. SE Outdoor Biology Instructional Strategies (OBIS) TI SEASHORE AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of PU Delta Education LO Nashua, NH DP 1979, 1980, 1981 PG [39] +20pp pond guide IL baw photographs and line drawings BI no AV in print PR \$14.10 April, 1988 AL 5,6,7,8,9,10 RL 4.5,6.7,8 DS seashore ; environments ; animals ; aquatic life ; aquatic animals ; organisms : currents ; plants ; beaches ; beach hoppers ; grasshoppers : frogs : tides ; elementary science methods ; integrated curriculum AN The SEASHORE module is made up of six activities, entitled Animal Movement In Water, Beachcombing, Hopper Circus, Salt Water Revival,

AN The SEASHORE module is made up of six activities, entitled Animal Movement In Water, Beachcombing, Hopper Circus, Salt Water Revival, Seas In Motion, and Water Breathers. While participating in these activities, children investigate aquatic environments and observe the organisms found at each study site. Specific investigations include discovering how aquatic animals move through water and how this movement and breathing affect currents; searching for evidence of plant and animal life on a sandy beach, and discussing the possible origins of their funds; watching beach hopper, grasshoppers, and frogs; creating an artificial high tide and noting its effect on marine life; and using simple devices to simulate the movements and currents of the sea. Each activity folio provides background information, a list of materials needed, preparation hints, directions for activites, and possible extensions. The folio is well organized and has useful illustrations and diagrams. The OBIS POND GUIDE supplements this module.

TN informal, 8-10 sessions, 45-60 minutes each MT locally available OR in library

NO 784 DE April 13, 1988 SU Biology TY Teacher's Guide CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of Science, 1980, 1981, 1982. STREAMS AND RIVERS. Nashua, NH: Delta Education. SE Outdoor Biology Instructional Strategies (OBIS) TI STREAMS AND RIVERS AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of Science PU Delta Education LO Nashua, NH DP 1980, 1981, 1982 PG [50] +20pp pond guide IL bow photographs and line drawings BI no AV in print PR \$17.15 April, 1988 AL 5,6,7,8,9,10 RL 4,5,6,7,8 DS animals ; aquatic animals : crawdads ; oil spills ; damselflies ; dragonflies ; snails : water striders : environments : animal behaviors ; plants : integrated curriculum : elementary science methods AN Crawdad Grab, Damsels and Dragons, Great Steamboat Race, Hold It, OBIS Oil Spill, Water Snails, Water Striders, and What Lives Here? are the eight activities that make up the STREAMS AND RIVERS module. In these activities, children observe and identify crawdads, damselflies, dragonflies, snails, water striders, and other aquatic plant and animal life. Investigations include conducting cork boat races, creating popcorn oil spills, and designing cork or sponge creatures. Each activity folio provides background information, a list of needed materials, preparation hints, directions for the activities, and possible extensions. The folio is well organized and has useful illustrations and diagrams. The OBIS POND GUIDE supplements this

module.

MT locally available

OR in library

TN informal, 9-13 sessions, 45-60 minutes each

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NO 785
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1980, 1982. TRAIL. Nashua, NH: Delta Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI TRAIL
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
PU Delta Education
LO Nashua, NH
DP 1980, 1982
PG [32]
IL bow photographs and line drawings
AV in print
PR $14.10 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS trails
; heart rate
: environment
; foot paths
: scavenger hunts
; erosion
: slope
: animals
: trees
; shrubs
; elementary science methods
; integrated curriculum
AN The TRAIL module consists of six activities, entitled Cardiac Hill,
Gaming In The Outdoors, Hold A Hill, Shake It!, Trail Construction, and
Trail Impact Study. Children participate in activities that increase
their awareness of the environment and how people and events may alter
it. Specific investigations include using heart rate to determine the
maximum steepness for a footpath; scavenging in order to become more
familiar with the environment; determining the relationship between
erosion and slope; matching a "mystery community" with animals that
are shaken from different trees and shrubs; selecting the best
trail-construction technique for a specific study site; and laying out
a foot path that will have the least impact on the environment. Each
activity folio provides background information, a list of needed
materials, preparation hints, directions for the activities, and
possible extensions. The folio is well organized and has useful
illustrations and diagrams.
TN informal, 6-8 sessions, 45-60 minutes each
MT locally available
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OR in library

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NO 786
DE April 13, 1988
SU Biology
TY Teacher's Guide
CI Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science, 1979, 1980, 1981, 1982. WINTERTIME. Nashua, NH: Delta
Education.
SE Outdoor Biology Instructional Strategies (OBIS)
TI WINTERTIME
AU Outdoor Biology Instructional Strategies (OBIS), Lawrence Hall of
Science
PU Delta Education
LO Nashua, NH
DP 1979, 1980, 1981, 1982
PG [33]
IL b&w photographs and line drawings
BI no
AV in print
PR $15.60 April, 1988
AL 5,6,7,8,9,10
RL 4,5,6,7,8
DS acorns
: animals
: adaptations
: temperature
; birds
; birdfeeders
; scents
; prey
  predators
: hibernation
; animal behavior
: environments
; elementary science methods
; integrated curriculum
AN The WINTERTIME module consists of six activities, entitled Acorns,
Animal Anti-Freeze, Birdfeeder, Population Game, Scent Tracking, and
Wintergreen. Children are involved in role playing squirrels and deer
and learning how to survive; searching for a hibernation site for a
make-believe animal; contructing a birdfeeder and investigating the
behavior of birds; simulating prey scents and play a game where
predators track the prey by following its scent; and locating green
plants under the snow and determining the light and temperature
conditions of the environment. Each activitiy folio provides
background information, a list of materials needed, preparation hints,
directions for the activities, and possible extensions. The folio is
well organized and has useful illustrations and diagrams.
TN informal, 6-8 sessions, 45-60 minutes each
MT locally available
OR in library
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b 800
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL K. Nashua, NH: Delta
Education.
TI SCIENCE - A PROCESS APPROACH II, LEVEL K
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
PU Delta Education
LO Nashua, NH
DP (1974)
IL b&w photos, line drawings
BI no
PR Guides: $21.95 Kit: $264.20
                                       March, 1988
AL K
RL K,1,2
DS color
; science process skills
; color
; shape
; texture
: size
; direction
: motion
: measurement
; whales
; geometry
; animals
; counting
; temperature
; classification
AN SCIENCE - A PROCESS APPROACH II, LEVEL K, introduces rudimentary
science process skills at the kindergarton level, through a series of
fifteen modules adapted from the twenty-two original SAPA exercises.
Instructions for the teacher's behavior and language are still
explicitly stated, and evaluation activities are included, as in the
original.
TN 15 sessions, at least 30 minutes
MT kit from Delta
OR in library
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NO 801
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 1. Nashua, NH: Delta
Education.
SE
TI SCIENCE - A PROCESS APPROACH II, LEVEL 1
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
BI no
PR Guides: $21.95 Kit: $462.05
                                        March, 1988
AL 1
RL K,1,2,3
DS science process skills
; sensory perception
; change
: weather
: clasification
; graphs
: balances
: forces and motions
; shadows
; soil
; volume
: measurement
; mold
; plants
AN SCIENCE - A PROCESS APPROACH II, LEVEL 1 extends the kindergarten
experiences of observing and classifying to first grade. Using
activities adapted from the original SAPA materials as well as new
lessons, children investigate living and nonliving things, begin to
make simple measurements, and to report their findings. There are
fifteen modules at this level, as compared with the original
twenty-six. Teacher instructions and evaluation questions continue to
be explicitly stated.
TN 15 sessions, at least 30 minutes
MT kit from Delta
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OR in library

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NO 802
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 2. Nashua, NH: Delta
Education.
SE
TI SCIENCE - A PROCESS APPROACH II, LEVEL 2
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
PR Guides: $21.95 Kit: $462.05
                                        March, 1988
AL 2
RL 1,2,3
DS science process skills
: animals
; animal behavior
; life cycles
; geometry
; symmetry
; graphs
; matter
: estimation
; temperature
; thermometers
; plants
: forces and motions
: prediction
; inference
: terrariums
AN SCIENCE - A PROCESS APPROACH II, LEVEL 2 introduces the process of
inference to skills already learned. Second grade students begin to
make inferences and predictions based on their observations of plants,
animals, and physical phenomena, and engage in simple collection of
data and estimation activities derived from the original SAPA
exercises. Detailed instructions for teaching and evaluating the
fifteen modules are supported by little scientific information.
TN 15 sessions, at least 30 minutes
MT kit from Delta
OR in library
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```
NO 803
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 3. Nashua, NH: Delta
Education.
SE
TI SCIENCE - A PROCESS APPROACH II, LEVEL 3
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
PR Guides: $21.95 Kit: $462.05
                                        March, 1988
AL 3
RL 2,3,4
DS science process skills
; measurement
: classification
; change
; inference
; prediction
: variables
; forces and motions
; plants
; geometry
AN In SCIENCE - A PROCESS APPROACH II, LEVEL 3, third grade students
continue investigations that incorporate observation, classification,
measurement, inference, and prediction, learning how to control
variables in their activities. The fifteen modules are derived from
twenty-two original SAPA exercises involving plants and animals,
physical forces, and geometry. Teacher instructions are explicit, but
there is little science background information to support or extend the
SAPA II experiences.
```

TN 15 sessions, at least 30 minutes

MT kit from Delta OR in library

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NO 804
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 4. Nashua, NH: Delta
Education.
SE
TI SCIENCE - A PROCESS APPROACH II, LEVEL 4
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
· PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
BI no
PR Guides: $21.95 Kit: $577.30
                                         March, 1988
AL 4
RL 3,4,5
DS science process skills
; electricity
: animals
; animal behavior
; plants
; sensory perception
: vision
; rocks
 : minerals
 ; magnification
: lenses
; seeds
: heart rate
; ecology
; liquids
; graphs
; conductivity
AN SCIENCE - A PROCESS APPROACH II, LEVEL 4 introduces fourth grade
students to operational definition, Pypothesis, and data analysis.
Adapted from twenty-three original exercises, the fifteen modules in
this sequence engage students in life, earth, and physical science
investigations. There is more biology and health study than in the
original, and less math. Teacher instructions and evaluation questions
are explicit, but scientific background information absent.
TN 15 sessions, at least 30 minutes
MT kit from Delta
OR in library
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NO 805
DE March 29, 1988
 SU Science Process Skills
 TY Curriculum Module
 CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 5. Nashua, NH: Delta
Education.
SE
TI SCIENCE - A PROCESS APPROACH II, LEVEL 5
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
. PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
PR Guides: $21.95 Kit: $617.00
                                         March, 1988
AL 5
RL 4,5,6
DS science process skills
 ; environment
 ; population
 ; chemistry
 ; reactions
 ; levers
 : forces and motions
 ; animals
 ; animal behavior
 ; probability
 ; geometry
 ; maps
 ; mapping
 ; contour maps
 ; plants
 ; magnetism
 : erosion
 ; streams
 ; gravity
 ; water flow
AN SCIENCE - A PROCESS APPROACH II, LEVEL 5 reinforces the skills
 taught at level 4, investigating phenomena in the life, earth, and
physical sciences in somewhat more detail. Fifteen lessons are derived
 from the original twenty-four at this level, though they are slightly
more oriented toward environmental topics than the original. Each
module contains detailed instructions and questions for evaluation, but
 science background information is inadequate to support further
 investigations.
 TN 15 sessions, at least 30 minutes
MT kit from Delta
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OR in library

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NO 806
DE March 29, 1988
SU Science Process Skills
TY Curriculum Module
CI American Association for the Advancement of Science (AAAS), (1974).
SCIENCE - A PROCESS APPROACH II, LEVEL 6. Nashua, NH: Delta
Education.
TI SCIENCE - A PROCESS APPROACH II, LEVEL 6
AU American Association for the Advancement of Science (AAAS)
AF American Association for the Advancement of Science
PU Delta Education
LO Nashua, NH
DP (1974)
PG
IL b&w photos, line drawings
BI no
PR Guides: $21.95 Kit: $577.30
                                        March, 1988
AL 6
RL 5,6,7
DS science process skills
; flowers
; plants
; astronomy
; animals
; sensory perception
; vision
; optical illusions
; eyes
; density
; viscosity
; fermentation
; moon
; hypothesis
; inference
; prediction
; chemistry
; reactions
; pressure
: volume
AN SCIENCE - A PROCESS APPROACH II, LEVEL 6 uses all the science
process skills that have been taught in spiral sequence as a basis for
extensive experimenting at sitxh grade level. In fifteen modules
derived from the original twenty-two SAPA exercises, students conduct
investigations in the three major topic areas of life, earth, and
physical sciences. Instructions for teaching and evaluating the modules
are explicit. Science background information to support the experiments
is lacking.
TN 15 sessions, at least 30 minutes
MT kit from Delta
OR in library
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NO 807
DE March 30, 1988
SU Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Joan Coffman Randle et
al., 1970. MATERIAL OBJECTS. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI MATERIAL OBJECTS
AU Science Curriculum Improvement Study (SCIS)
; Randle, Joan Coffman
; Thier, Herbert D.
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Rand McNally and Company
LO Chicago, IL 60680
DP 1970
PG 80
IL b&w line drawings and photographs
BI no
IS 528-90102-8
LC none
AL 1
RL 1
DS scientific method
; scientific process
; objects
; properties
; materials
; serial ordering
: changes
; evidence
; grouping
; sorting
; comparisons
; elementary science methods
AN MATERIAL OBJECTS offers students the opportunity to observe,
manipulate, compare and change the form of common objects. Students
study their color, shape, texture, hardness, and weight. Pupils will
learn that an object is a piece of matter and properties are
characteristics of those pieces of matter. Property comparison leads to
"serial ordering", or reclassifying, to show even finer differences.
The unit culminates with experimentation involving objects as students
compare sugar cubes and rock candy, and objects that sink or float. A
kit is available from Delta to provide all materials needed in an
organized, convenient fashion.
TN There are 21 lessons 20-25 minutes each
MT Kit from Delta, locally available
OR in library
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NO 807
DE March 30, 1988
SU Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Joan Coffman Randle et
al., 1970. MATERIAL OBJECTS. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI MATERIAL OBJECTS
AU Science Curriculum Improvement Study (SCIS)
: Randle, Joan Coffman
 ; Thier, Herbert D.
'AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Rand McNally (available from Delta)
LO Chicago, IL
DP 1970
PG 80
IL bow line drawings and photos
BI no
IS 528-90102-8
LC
AL 1
RL 1
DS scientific method
; science process skills
; attributes
; sequencing
; classification
; comparing
; physical properties
; physical science
; properties
; serial ordering
; change
; grouping
; sorting
; comparison
 ; elementary science methods
AN MATERIAL OBJECTS offers students the opportunity to observe,
manipulate, compare, and change the form of common objects. Students
learn that an object is a form of matter and that its color, shape,
texture, hardness, and weight are called "properties". Comparing
properties leads to "serial ordering", or reclassifying, to show finer
differences. Students compare sugar cubes and rock candy, and contrast
objects that sink or float.
TN 21 lessons 20-25 minutes each
MT locally available, or kit from Delta
OR in library
IN MATERIAL OBJECTS
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NO 809
DE March 30, 1988
SU Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1985. MATERIAL OBJECTS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI MATERIAL OBJECTS
AU Science Curriculum Improvement Study (SCIIS/85)
; Their, Herbert D.
: Karplus, Robert
; Lawson, Chester A.
: Knott. Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG 122
IL b&w line drawings and photographs
IS 0-87504-401-8
LC none
AL 1
RI. 1
DS scientific method
; scientific process
; objects
; properties
; materials
; serial ordering
; changes
; evidence
; grouping
; sorting
; comparisons
; elementary science methods
AN The teacher's guide for MATERIAL OBJECTS has been revised and a
supplement section added. The supplement organizes the lessons in a
format that would ease the task for a teacher new to the SCIIS/85
program and offers optional activities as the teacher becomes more
comfortable with the program. One new lesson looks at the properties
of plastics and students are introduced to the differences between
natural and synthetic objects. A second new lesson has students
comparing balloons inflated with air and helium.
TN There are 20 lessons 20-30 minutes each
MT Kit from Delta, locally available
OR in library
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NO 809
DE March 30, 1988
SU Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1985. MATERIAL OBJECTS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI MATERIAL OBJECTS
AU Science Curriculum Improvement Study (SCIIS/85)
; Thier, Herbert D.
; Karplus, Robert
; Lawson, Chester A.
; Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Delta
LO Nashua, NH
DP 1985
PG 122
IL bow line drawings and photos
BI no
IS 0-87504-401-8
AL 1
RL 1
DS scientific method
; science process skills
; properties
; serial ordering
; change
; grouping
; sorting
; comparison
; elementary science methods
AN The teacher's guide for MATERIAL OBJECTS has been revised and a
supplement section added. The supplement organizes the lessons in a
format that eases the teacher's task and offers optional activities.
One new lesson looks at the properties of plastics and students are
introduced to the differences between natural and synthetic objects.
The second new lesson has students comparing balloons inflated with air
and helium.
TN 20 lessons 20-30 minutes each
MT locally available or kit from Delta
OR in library
IN MATERIAL OBJECTS
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NO 810
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS II), Lester G. Paldy, et
al., 1986. ENVIRONMENTS. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study (SCIS II)
TI ENVIRONMENTS
'AU Science Curriculum Improvement Study (SCIIS/85)
; Paldy, Lester G.
; Amburgey, Leonard L.
; Collea, Francis
; Cooper, Richard
: Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1986
PG 121
IL baw line drawings, charts, graphs
BI yes
IS
LC EN201
AL 4
RL 4
DS scientific method
: scientific process
; terraria
: environment
; environmental factors
: temperature
; optimum range
: animals
; plants
; elementary science methods
AN The teacher's guide for ENVIRONMENTS, SCIS II, is basically the same
as SCIS except several of the kinds of living organisms used in the
unit have been changed.
TN There are 29 lessons, 35-40 minutes each
MT Kit from Delta
OR in library
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NO 810
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS II), Lester G. Paldy, et
al., 1986. ENVIRONMENTS. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study (SCIS II)
TI ENVIRONMENTS
AU Science Curriculum Improvement Study (SCIIS/85)
; Paldy, Lester G.
; Amburgey, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta
LO Nashua, NH
DP 1986
PG 121
IL b&w line drawings, charts, graphs
BI yes
AL 4
RL 4
DS scientific method
; science process skills
: terrariums
: environments
; environmental factors
; temperature
; life science
: habitats
; animals
; plants
; elementary science methods
AN The teacher's guide for ENVIRONMENTS, SCIS II, remains the same as
the original version, with addition of lessons and changes in the types
of organisms used.
TN 29 lessons, 35-40 minutes each
MT Kit from Delta
OR in library
IN ENVIRONMENTS
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NO 811
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), David Conrad et al.,
1970. ENVIRONMENTS. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI ENVIRONMENTS
AU Science Curriculum Improvement Study (SCIS)
; Conrad, David
; Knott, Robert C.
; Lawson, Chester A.
; Sheehan, Charlyn
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Rand McNally (available from Delta)
LO Chicago, IL 60680
DP 1970
PG 97
IL b&w abd color photos, line drawings, graphs, charts
IS 528-90137-0
AL 4
RL 4
DS scientific method
; science process skills
; terrariums
; environments
; environmental factors
; temperature
: life science
; habitats
; animals
; plants
; elementary science methods
AN To study ENVIRONMENTS, the students begin by designing and building
their own terrariums. They then conduct experiments to determine the
responses of the animals and plants to changes in such environmental
factors as amount of light, heat, and moisture. The students learn
about optimum range, as they record and interpret results and then use
the information to plan a new and more favorable environment.
accompanying kit includes materials and class charts.
TN 15 lessons, 35-40 minutes each
MT Kit from Delta
OR in library
IN ENVIRONMENTS
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NO 812
 DE March 30, 1988
 SU Life
 TY Teacher's Guide
 CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
 et al., 1985. ENVIRONMENTS. Nashua, NH: Delta Education. Inc.
 SE Rand McNally SCIIS
 TI ENVIRONMENTS
 AU Science Curriculum Improvement Study (SCIIS/85)
 ; Thier, Herbert D.
 ; Karplus, Robert
; Lawson, Chester A.
 ; Knott, Robert
 ; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
 PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
 PG
 IL baw line drawings, photographs, charts, and graphs
 IS 0-87504-408-5
LC GUI408
AL 4
RL 4
DS scientific method
 ; scientific process
 ; environment
 ; environmental factors
 ; biotic factors
 ; abiotic factors
 ; temperature
 ; optimum range
 ; terrariums
 ; animals
 ; plants
 : elementary science methods
AN The teacher's guide for ENVIRONMENTS, SCIIS/85, has been revised to
help teachers reduce preparation time. A supplement, prepared by
teachers has been added that offers a clear format. A new lesson on
"The Human Environment" has been added. A kit is available from Delta.
TN There are 17 lessons, 35-40 minutes each
MT Kit from Delta
OR in library
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NO 812
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1985. ENVIRONMENTS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI ENVIRONMENTS
AU Science Curriculum Improvement Study (SCIIS/85)
; Thier, Herbert D.
; Karplus, Robert
: Lawson, Chester A.
: Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta
LO Nashua, NH 03061
DP 1985
PG 118
IL b&w line drawings, photographs, charts, and graphs
IS 0-87504-408-5
AL 4
RL 4
DS scientific method
; science process skills
; environments
: environmental factors
; temperature
: life science
: habitats
; terrariums
; animals
; plants
; elementary science methods
AN The teacher's guide for ENVIRONMENTS, SCIIS/85, has been revised to
include a supplement prepared by teachers, reducing preparation time
and providing a simplified lesson format. A lesson on "The Human
Environment" has been added.
TN 17 lessons, 35-40 minutes each
MT Kit from Delta
OR in library
IN ENVIRONMENTS
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NO 813
DE March 30, 1988
 SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Sandra Fletcher, et
al., 1970. ORGANISMS. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI ORGANISMS
AU Science Curriculum Improvement Study (SCIS)
 ; Fletcher, Sandra
 ; Lawson, Chester A.
; Rawitscher-Kunkel, Erika
AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
PU Rand McNally and Company
LO Chicago, IL 60680
DP 1970
PG 65
IL b&w photographs, color photographs, line drawings
IS 528-90107-9
LC none
AL 1
RL 1
DS scientific method
 ; scientific process
 ; seeds
 ; plants
 ; aquaria
 ; organisms
 ; habitat
 ; algae
 ; food webs
 : detritus
 ; germination
 : life cycles
 ; elementary science methods
AN The topic of this unit is types of organisms. Students are involved
 in describing different seeds, germinating the seeds, and growing
plants. They set up an aquarium with guppies, snails, and water
plants, in order to observe and discuss birth, growth, and death of
 organisms. Students use the school yard or nearby parks to learn,
first hand, about habitats. Detritus, the decaying matter in the
aquaria, offers another learning opportunity as it is used in an
 experiment as plant fertilizer. A complete kit is available from
Delta.
TN There are 16 lessons, 20-25 minutes each
MT Kit from Delta
OR in library
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NO 811
DE March 30, 1988
 SU Life
 TY Teacher's Guide
 CI Science Curriculum Improvement Study (SCIS), David Conrad et al.,
 1970. ENVIRONMENTS. Chicago, IL: Rand McNally and Company.
 SE Science Curriculum Improvement Study (SCIS)
 TI ENVIRONMENTS
 AU Science Curriculum Improvement Study (SCIS)
 ; Conrad, David
 ; Knott, Robert C.
; Lawson, Chester A.
 ; Sheehan, Charlyn
AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
 PU Rand McNally and Company
LO Chicago, IL 60680
DP 1970
PG
 IL color photographs, bew photographs, line drawings, graphs, charts
 BI no
 IS 528-90137-0
LC none
 AL 4
RL 4
 DS scientific method
 ; scientific process
 ; terraria
 ; environment
 ; environmental factors
 ; temperature
 ; optimum range
 ; animals
 ; plants
 ; elementary science methods
 AN The topic of this unit is environments. The students begin by
 designing and building their own terraria. They then become involved
 in experiments to determine the responses of the animals and plants to
 controlled environmental factors such as amount of light, heat, and
 moisture. The students learn about optimum range as they record and
 interpret results and then use the information to plan a new and
                         A kit is available throught Delta with all
 favorable environment.
 materials including class charts.
 TN There are 15 lessons, 35-40 minutes each
 MT Kit from Delta
 OR in library
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book date a

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NO 814
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy,
et al., 1985. ORGANISMS. Cambridge, MA: American Science and
Engineering (AS&E).
SE Science Curriculum Improvement Study II (SCIS II)
TI ORGANISMS
AU Science Curriculum Improvement Study II (SCIS II)
; Paldy, Lester G.
; Amburgey, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU American Science and Engineering (AS&E) (available from Delta)
LO Cambridge, MA
DP 1978
PG 97
IL b&w line drawings
BI yes
IS 0-8339-1102-3
AL 1
RL 1
DS scientific method
; science process skills
; seeds
; plants
; aquariums
; organisms
; habitat
; algae
: food webs
; life science
; guppies
; snails
; germination
; life cycles
; elementary science methods
AN The SCIS II version of ORGANISMS differs from the original by
addition of 13 lessons. See: ORGANISMS. Science Curriculum
Improvement Study (SCIS). Chicago, IL: Rand McNally, 1970.
TN 29 lessons, 20-25 minutes each
MT Kit from Delta
OR in library
IN ORGANISMS
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NO 815
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS), Herbert D. Thier, et
al., 1985. ORGANISMS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI ORGANISMS
AU Science Curriculum Improvement Study (SCIIS)
: Lawson, Chester A.
; Knott, Robert
; Karplus, Robert
; Their, Herbert D.
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG 106
IL b&w line drawings, photographs and charts
IS 0-87504-402-6
LC GUI402
AL 1
RL 1
DS scientific method
; scientific process
; seeds
; plants
; aquaria
; organisms
; habitat
; algae
; food webs
: detritus
; germination
; life cycles
; eler ntary science methods
AN The SCIIS/85 Teacher's Guide offers a revised format that simplifies
the use of the ORGANISMS unit. The addition of several appendices
offers teachers five evaluation activities and a discussion of
attitudes in science that should prove helpful.
TN There are 16 lessons, 20-25 minutes each
MT Kit from Delta
OR in library
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dotations

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NO 815
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS), Herbert D. Thier, et
al., 1985. ORGANISMS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI ORGANISMS
AU Science Curriculum Improvement Study (SCIIS)
; Lawson, Chester A.
; Knott, Robert
; Karplus, Robert
; Their, Herbert D.
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Delta
LO Nashua, NH
DP 1985
PG 106
IL b&w line drawings, photographs and charts
IS 0-87504-402-6
AL 1
RL 1
DS scientific method
; science process skills
; seeds
; plants
; aquariums
; organisms
: habitat
; algae
; food webs
; life science
; guppies
; snails
; gerrination
: life cycles
; elementary science methods
AN The SCIIS Teacher's Guide offers a revised format that simplifies
the use of the ORGANISMS unit. The addition of several appendices
offers teachers five evaluation activities and a helpful discussion of
attitudes in science that should prove helpful.
TN There are 16 lessons, 20-25 minutes each
MT Kin from Delta
OR in library
IN ORGANISMS
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NO 816
 DE March 30, 1988
 SU Life
 TY Teacher's Guide
 CI Science Curriculum Improvement Study (SCIS), David Conrad et al.,
 1972. POPULATIONS. Chicago, IL: Rand McNally and Company.
 SE Science Curriculum Improvement Study (SCIS)
 TI POPULATIONS
 AU Science Curriculum Improvement Study (SCIS)
 : Conrad, David
·; Knott, Robert C.
 ; Lanier, Mary Ann
 ; Lawson, Chester A.
 AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
 PU Rand McNally and Company
 LO Chicago, IL 60680
 DP 1972
 PG
 IL b&w photographs, line drawings, graphs, charts and color photographs
 IS 528-90127-3
 LC none
 AL 3
 RL 3
 DS scientific method
 ; scientific process
 ; population
 : food chain
 : plant eater
 : animal eater
 : food web
 ; community
 ; predator - prey
 ; animals
 ; plants
 ; life cycles
 ; elementary science methods
 AN While studying the POPULATIONS unit students become acquainted with
 increases or decreases in population by charting the numbers of daphnia
 and aphids over a two week period of time. Several populations of
 plants and animals are grouped together in aquaria and terraria that
 the children build. The pupils study and experiment with these
 populations to learn about food chains, relationships between predators
 and prey, plant eaters, and animal eaters. The unit ends with a look
 at how interdependent populations in a given area make up what is known
 as a community. A kit with all materials is available from Delta
 TN There are 16 lessons, 30-35 minutes each
 MT Kit from Delta
 OR in library
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Lich

NO 816 DE March 30, 1988 SU Life Science TY Teacher's Guide CI Science Curriculum Improvement Study (SCIS), David Conrad et al., 1972. POPULATIONS. Chicago, IL: Rand McNally and Company. SE Science Curriculum Improvement Study (SCIS) TI POPULATIONS AU Science Curriculum Improvement Study (SCIS) ; Conrad, David ; Knott, Robert C. .; Lanier, Mary Ann ; Lawson, Chester A. AF Lawrence Hall of Science, University of California, Berkeley ; National Science Foundation PU Rand McNally (available from Delta) LO Chicago, IL **DP 1972** PG 89 IL b&w and color photos, line drawings, graphs, charts BI no IS 528-90127-3 AL 3 RL 3 DS scientific method ; science process skills ; populations ; food chains : food webs ; communities ; predator carnivores : herbivores ; prey ; life science ; aquariums : terrariums : animals ; plants ; life cycles ; elementary science methods AN While studying the POPULATIONS unit students construct aquariums and terrariums and chart increases or decreases in population by charting the numbers of daphnia and aphids over a two week period of time. pupils study and experiment with these populations to learn about food chains, relationships between predators and prey, plant eaters, and animal eaters. This investigation of interdependent populations leads students to a definition of 'community'. TN 16 lessons, 30-35 minutes each MT Kit from Delta OR in library IN POPULATIONS

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NO 817
 DE March 30, 1988
 SU Life
 TY Teacher's Guide
 CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy.
 et al., 1978. POPULATIONS. Cambridge, MA: American Science and
 Engineering (AS&E).
 SE Science Curriculum Improvement Study II (SCIS II)
 TI POPULATIONS
AU Science Curriculum Improvement Study II (SCIS II)
.; Paldy, Lester G.
 ; Amburgey, Leonard L.
 ; Collea, Francis
 ; Cooper, Richard
 ; Maxwell, Donald E.
 : Riley, Joseph W.
 AF Lawrence Hall of Science, University of California, Berkeley
 PU American Science and Engineering (AS&E)
LO Cambridge, MA 02139
DP 1978
 PG 123
 IL b&w line drawings, charts and graphs
BI yes
 IS 0-8339-1302-6
LC none
 AL 3
RL 3
DS scientific method
 ; scientific process
 ; populations
 ; food chains
 ; plant eaters
 ; animal eaters
 ; food webs
 : communities
 : animals
 ; plants
 ; elementary science methods
 ; dispersal
 AN While studying the POPULATIONS unit students become acquainted with
 increases or decreases in population by charting the numbers of daphnia
 and aphids over a two week period of time. Several populations of
 plants and animals are grouped together in aquaria and terraria that
 the children build. The pupils study and experiment with these
 populations to learn about food chains, relationships between predators
 and prey, plant eaters, and animal eaters. The unit ends with a look
 at how interdependent populations in a given area make up what is known
 as a community. A kit with all materials is available from Delta
 TN There are 25 lessons, 30-35 minutes each
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MT Kit from Delta OR in library

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NO 813
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Sandra Fletcher, et
al., 1970. ORGANISMS. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI ORGANISMS
AU Science Curriculum Improvement Study (SCIS)
; Fletcher, Sandra
; Lawson, Chester A.
; Rawitscher-Kunkel, Erika
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Rand McNally (available from Delta)
LO Chicago, IL
DP 1970
PG 65
IL b&w and color photos, line drawings
IS 528-90107-9
AL 1
RL 1
DS scientific method
; science process skills
; seeds
; plants
; aquariums
; organisms
: habitats
; algae
: food webs
; life science
; guppies
; snails
: germination
; life cycles
; elementary science methods
AN In ORGANISMS, students describe different seeds, germinate the
seeds, and grow plants. They set up an aquarium with guppies, snails,
and water plants, in order to observe and discuss birth, growth, and
death of organisms. Detritus, the decaying matter in the aquarium,
offers another learning opportunity as it is used to fertilize plants
in another experiment. Students then explore the schoolyard or nearby
parks to learn firsthand about natural habitats.
TN lessons, 20-25 minutes each
MT Kit from Delta
OR in library
IN ORGANISMS
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NO 814 DE March 30, 1988 SU Life TY Teacher's Guide CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy, et al., 1985. ORGANISMS. Cambridge, MA: American Science and Engineering (AS&E). SE Science Curriculum Improvement Study II (SCIS II) TI ORGANISMS AU Science Curriculum Improvement Study II (SCIS II) : Paldy, Lester G. ; Amburgey, Leonard L. : Collea, Francis ; Cooper, Richard ; Maxwell, Donald E. ; Riley, Joseph W. AF Lawrence Hall of Science, University of California, Berkeley PU American Science and Engineering (AS&E) LO Cambridge, MA 02139 **DP 1978** PG 97 IL b&w line drawings BI yes IS 0-8339-1102-3 LC none AL 1 RL 1 DS scientific method ; scientific process ; seeds ; plants ; aquaria ; organisms ; habitat ; algae ; food webs ; detritus ; germination ; life cycles ; elementary science methods AN The topic of this unit is types of organisms. Students are involved in describing different seeds, germinating the seeds, and growing plants. They set up an aquarium with guppies, snails, and water plants, in order to observe and discuss birth, growth, and death of organisms. Students use the school yard or nearby parks to learn, first hand, about habitats. Detritus, the decaying matter in the aquaria, offers another learning opportunity as it is used in an experiment as plant fertilizer. A complete kit is available from Delta. TN There are 29 lessons, 20-25 minutes each MT Kit from Delta OR in library

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NO 817
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy,
et al., 1978. POPULATIONS. Cambridge, MA: American Science and
Engineering (AS&E).
SE Science Curriculum Improvement Study II (SCIS II)
TI POPULATIONS
AU Science Curriculum Improvement Study II (SCIS II)
; Paldy, Lester G.
; Amburgey, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU American Science and Engineering (AS&E) (available from Delta)
LO Cambridge, MA
DP 1978
PG 123
IL b&w line drawings, charts and graphs
BI yes
IS 0-8339-1302-6
AL 3
RL 3
DS scientific method
; science process skills
; populations
; food chains
; food webs
; communities
; animals
; plants
; elementary science methods
; +predator
; prey
; carnivores
; herbivores
: prey
: life science
; aquariums
: terrariums
AN The SCIS II version of POPULATIONS differs from the original by
addition of nine lessons. See: POPULATIONS. Science Curriculum
Improvement Study (SCIS). Chicago, IL: Rand McNally, 1972.
TN 25 lessons, 30-35 minutes each
mT Kit from Delta
OR in library
IN POPULATIONS
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NO 818
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1978. POPULATIONS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI POPULATIONS
AU Science Curriculum Improvement Study (SCIIS)
; Their, Herbert D.
; Karplus, Robert
:; Lawson, Chester A.
; Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1978
PG 113
IL b&w line drawings and photographs
IS 0-87504-406-9
LC none
AL 3
RL 3
DS scientific method
; scientific process
; populations
; plant eaters
; animal eaters
: food webs
: animals
; plants
; elementary science methods
; predator - prey
; plant - animal eater
; biotic potential
AN The teacher's guide for SCIIS/85 is very similar to SCIS and SCIS II
with a few additions. Several appendices offer evaluation activities
and a discussion on attitudes in science that may be helpful to a
teacher. A supplement has been added offering a simplified format that
will reduce preparation time, but, since it lacks background
information it cannot be used alone.
TN There are 18 lessons, 30-35 minutes each
MT Kit from Delta
OR in library
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NO 818
DE March 30, 1988
SU Life Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1978. POPULATIONS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI POPULATIONS
AU Science Curriculum Improvement Study (SCIIS)
; Their, Herbert D.
; Karplus, Robert
; Lawson, Chester A.
; Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta
LO Nashua, NH
DP 1978
PG 113
IL b&w photos and line drawings
IS 0-87504-406-9
AL 3
RL 3
DS scientific method
; science process skills
; populations
: food webs
: food chains
; animals
; plants
; elementary science methods
; predator
; prey
; omnivore
; carnivores
; herbivores
: life science
; aquariums
 ; terrariums
AN The teacher's guide for SCIIS/85 POPULATIONS is very similar to SCIS
and SCIS II with a few additions. Several appendices offer evaluation
activities and a helpful discussion of attitudes in science. A
supplement provides a simplified format that reduces preparation time,
but since it lacks background information it cannot be used alone.
TN There are 18 lessons, 30-35 minutes each
MT Kit from Delta
OR in library
IN POPULATIONS
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NO 819
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Robert C. Knott, et
al., 1971. COMMUNITIES. Chicago, IL: Rand McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI COMMUNITIES
AU Science Curriculum Improvement Study (SCIS)
; Knott, Robert C.
; Lanier, Mary Ann
; Lawson, Chester A.
; Sheehan, Charlyn
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Rand McNally and Company
LO Chicago, IL 60680
DP 1971
PG 113
IL baw photographs, line drawings, graphs, charts and color photographs
BI no
IS 528-90147-8
LC none
AL 5
RL 5
DS scientific method
; scientific process
; germination
; molds
; bacteria
; yeast
, competitors
; photosynthesis
: food transfer
: raw materials
; community
; producers
; consumers
; decomposers
; plants
; animals
; elementary science methods
AN The COMMUNITIES unit emphasizes the interdependent populations in
any given area. Students are involved in dissecting and identifing
parts of a seed, planting seeds in a terrarium, and learning about food
chains. The children gradually add animals to their terrarium to
discover plant eaters, animal eaters, and decomposers. They learn that
plants are producers and animals are consumers within a given
community. Finally they look at a community where people are present
and control the environment. A kit with all materials provided and
organized is available.
TN There are 17 lessons, 40-45 minutes each
MT Kit from Delta
OR in library
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NO 820
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy,
et al., 1986. COMMUNITIES. Nashua, NH: Delta Education Inc.
SE Science Curriculum Improvement Study II (SCIS II)
TI COMMUNITIES
AU Science Curriculum Improvement Study II (SCIS II)
; Paldy, Lester G.
; Amburgey, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta Education Inc.
LO Nashua, NH 03061
DP 1986
PG
IL b&w line drawings, charts, graphs and diagrams
IS
LC CM201
AL 5
RL 5
DS scientific method
; scientific process
; seed coats
; bean embryo
; cotyledons
; germination
; photosynthesis
; producers
: dicot
; monocot
; communities
: consumers
; decomposers
; plants
: animals
; elementary science methods
AN The COMMUNITIES unit emphasizes the interdependent populations in
any given area. Students are involved in dissecting and identifing
parts of a seed, planting seeds in a terrarium, and learning about food
chains. The children gradually add animals to their terrarium to
discover plant eaters, animal eaters, and decomposers. They learn that
plants are producers and animals are consumers within a given
community. finally they look at a community where people are present
and control the environment. A kit with all materials provided and
organized is available.
TN There are 33 lessons, 40-45 minutes each
MT Kit from Delta
OR in library
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NO 821
DE March 30, 1988
SU Life
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1985. COMMUNITIES. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI COMMUNITIES
AU Science Curriculum Improvement Study (SCIIS)
 ; Their, Herbert D.
 ; Karplus, Robert
; Lawson, Chester A.
 ; Knott, Robert
 : Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1985
PG 139
IL baw line drawings, charts, diagrams graphs and photographs
IS 0-87504-410-7
LC none
AL 5
RL 5
DS scientific method
 ; scientific process
 ; pyramid of numbers
 ; raw materials
 ; reproduction
 : community
 ; producers
 ; consumers
 ; decomposers
 ; photosynthesis
 ; food transfer
 : competitors
 ; plants
 : animals
 ; elementary science methods
AN This version of the COMMUNITIES unit is basically the same as the
 SCIS and SCIS II guides, but it does contain several additions. An
 appendix contains five well constructed evaluation tools that focus on
process. A supplement is added that offers a simplified format for the
 lessons. A kit is available from Delta.
TN There are 19 lessons, 40-45 minutes each
MT Kit from Delta
OR in library
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TN There are 65 lessons 15-20 minutes each MT Kit from Delta OR in library

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826
E March 30, 1988
SU Life
; Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier,
et al., 1986. BEGINNINGS. Nashua, NH: Delta Education, Inc.
SE Rand McNally SCIIS
TI BEGINNINGS
AU Science Curriculum Improvement Study (SCIIS/85)
: Their, Herbert D.
; Karplus, Robert
; Lawson, Chester A.
; Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH
DP 1986
PG 111
IL b&w line drawings and photographs
IS 0-87504-400-X
LC GUI400
AL K
RL K
DS scientific method
; scientific process
; colors
; shapes
; textures
; odors
; sounds
; sorting
; outlining
; comparing
; rhythms
; sizing
; quantity
; position
; organisms
; weighing
; counting
; measuring
; seeds
; seedlings
; plants
; spatial relationships
; elementary science methods
AN The Rand McNally SCIIS (SCIIS/85) BEGINNINGS guide is the same as
the SCIS guide with one exception. The SCIIS/85 kit contains an
aquarium and an order form to send away for living organisms. Students
will be able to observe freshwater crabs, goldfish, newts, snails and
water plants
TN There are 66 lessons 15-20 minutes each
Malal Francisco
cl. in line
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NO 827
DE March 31, 1988
SU Life Science
; Senses
TY Activity Cards
; Teacher's Guide
CI Macdonald Educational, Roy Richards, Et al, 1981. OURSELVES.
London, England: Macdonald and Company.
SE Learning Through Science
TI OURSELVES
AU Macdonald Educational
; Richards, Roy
; Kincaid, Doug
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1981
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075494
LC none
AL K, 1, 2, 3, 4
RL K, 1, 2, 3, 4
DS attributes
; senses
: classification
; comparison
; development
; measurement
; variation
; eyes
: ears
; nose
: mouth
; fingers
; science process skills
; elementary science methods
AN In OURSELVES children develop skill in applying the methods of
scientific inquiry as they investigate the variations and attributes
associated with the human senses. The gathering and recording of
information is emphasized as children measure then compare the results
of investigations that test the capabilities of the sensing organs.
Pinpointing sounds, determining leg strength, experiencing the
relationship between taste and smell, and learning about the skeletal
and digestive systems lead children to understand more about
themselves. The teacher's guide is sketchy and the activity cards are
designed so that they may be used independently by children or as a
guide for a total classroom lesson.
TN There are 24-30 lessons, 20-25 minutes each
MT locally available, commercial suppliers
OR in library
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NO 828
DE March 31, 1988
SU General Science
; Color
TY Activity Cards
; Teacher's Guide
CI Macdonald Educational, Doug Kincaid, Et al, 1981. COLOUR. London,
England: Macdonald and Company.
SE Learning Through Science
TI COLOUR
AU Macdonald Educational
; Kincaid, Doug
; Richards, Roy
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1981
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075508
LC none
AL K, 1, 2, 3, 4
RL K, 1, 2, 3, 4
DS senses
; classification
; color
; light
; dark
; change
; solubility
; perception
; dyes
; fading
; science process skills
; elementary science methods
AN In COLOUR, observation skills are heightened as children make an in
depth study into the world of color. Each activity raises questions
then proposes inquiries which will lead children to a better
understanding of the relationships between colors and their local
environment. Children collect items of various colors, experiment with
the mixing of colors, question the usefulness of colored items,
investigate color perception, and learn about the importance of color
to the sucess of plants and animals. The activity cards can be used
independently by children or as a guide for a total class lesson. The
teacher's guide is of limited use.
TN There are 24-30 lessons, 20-25 minutes each
MT locally available, commercial suppliers
OR in library
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NO 831
DE March 31, 1988
SU Ecology
: Local environment
TY Activity Cards
: Teacher's Guide
CI Macdonald Educational, Margaret Collis, et al, 1982. ALL AROUND.
London, England: Macdonald and Company.
SE Learning Through Science
TI ALL AROUND
AU Macdonald Educational
: Collis, Margaret
; Kincaid, Doug
AF Schools Council
: Scottish Education Department
PU Macdonald and Company
LO London, England
: Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1982
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075532
LC none
AL K, 1, 2, 3, 4
RL 2,3,4,5
DS environment
: invertebrates
; plants
: weather
: classification
; life cycles
: adaptations
; animal behavior
: food chains
; science process skills
; elementary science methods
AN In ALL AROUND, the local environment becomes the focus as a training
ground for the development of young naturalists. The skills of
observation, using all the senses, are reinforced as children
experience explorations and investigations into the plant and animal
life around their homes. By examining animal and plant habitats,
children gain an awareness of the life needs, variability, and
adaptibility that exists in the living world. The teacher's guide is
sketchy and activity cards can be used independently but are more
appropriate for teacher-directed lessons.
TN There are 24-30 lessons, 30-45 minutes each
MT locally available, commercial suppliers
OR in library
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NO 832
DE March 31, 1988
SU Ecology
; Local environment
TY Activity Cards
: Teacher's Guide
CI Macdonald Educational, Margaret Collis, et al, 1982. OUT OF DOORS.
London, England: Macdonald and Company.
SE Learning Through Science
TI OUT OF DOORS
AU Macdonald Educational
; Collis, Margaret
; Kincaid, Doug
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1982
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075540
LC none
AL K, 1, 2, 3, 4
RL 3.4,5,6
DS environment
: weather
; earth
; soil
; atmosphere
; shapes
; measuring
: outdoor education
; science process skills
; elementary science methods
AN In OUT OF DOORS, children examine the composition of soil, make
measurements concerning some everyday weather phenomena, and hone their
observation skills by looking for shapes, patterns, and by making
approximations about objects in the local environment. Information
gathering skills are emphasized as activities lead children to
understand the variations in soil types and records are refined due to
changes in wind, rain, and temperature. The ability to discriminate
and define common terms such as thick or thin, short or long, big or
small, many or few is tested as children observe outside the classroom.
The activity cards can be used independently but are more appropriate
for teacher-directed lessons. The teacher's guide offers little
support for the classroom teacher.
TN There are 24-30 lessons, 30-45 minutes each
MT locally available, commercial suppliers
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NO 833
DE March 31, 1988
SU Movement, Animal
; Movement, Air/Flight
TY Activity Cards
: Teacher's Guide
CI Macdonald Educational, Doug Kincaid, et al, 1983.
                                                       ON THE MOVE.
London, England: Macdonald and Company.
SE Learning Through Science
TI ON THE MOVE
AU Macdonald Educational
; Kincaid, Doug
; Richards, Roy
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1983
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075559
LC none
AL K, 1, 2, 3, 4
RL K, 1, 2, 3
DS environment
; movement
; air/flight
; toys
; energy;
: adaptation
; force
; transportation
; gravity
; measuring
; feet
: animal movement
: invertebrates
: vertebrates
; boats
; science process skills
; elementary science methods
AN In ON THE MOVE, both observations about and investigations into the
nature of movement engage children in meaningful activities. Children
compare the movement of mammals, birds, fish, and various invertebrates
to get a sense of the variety of propulsion seen in the animal kingdom.
The principles of flight are illustrated through the examination of
paper airplanes, boomerangs, parachutes, and autogyros. Movement on
water and land is explored as children build clay boats, tops, wheeled
vehicles, and cotton reel tanks. The teacher's guide is sketchy and
the activity cards can be easily used independently or in a
teacher-directed lesson.
TN There are 24-30 lessons, 30-45 minutes each
MT locally available, commercial suppliers
OR in library
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NO 834 DE March 31, 1988 SU General Science ; Energy ; Simple Machine TY Activity Cards : Teacher's Guide CI Macdonald Educational, Doug Kincaid, et al, 1983. MOVING AROUND. London, England: Macdonald and Company. SE Learning Through Science TI MOVING AROUND AU Macdonald Educational ; Kincaid, Doug ; Richards, Roy AF Schools Council ; Scottish Education Department PU Macdonald and Company LO London, England ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1983 PG 24 activity cards IL color drawings BI no IS 0-356-075567 LC none AL K, 1, 2, 3, 4RL 2,3,4 DS movement ; transport ; toys ; change ; machines ; energy ; magnets ; electricity ; design ; technology ; force ; friction ; gravity ; science process skills ; elementary science methods AN In MOVING AROUND, investigations are intended as an introduction to the concepts and characteristics of energy. The movement of vehicles on ramps is used to illustrate the relationship between speed and distance. Activities are included which provide children with experience manipulating simple machines such as levers, wheels, gears, screws, and pulleys. Additionally, children become familiar with the basic behavior of simple magnets. Many opportunities are available for the introduction of terms such as friction, force, gravity, and energy. Teacher directed lessons are more appropriate rather than independent use of the activity cards. The teacher's guide offers little help for planning and implementing lessons. TN There are 24-30 lessons, 30-45 minutes each MT locally available, commercial suppliers OR in library

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NO 835
DE March 31, 1988
SU Geology
: Earth Science
TY Activity Cards
: Teacher's Guide
CI Macdonald Educational, Doug Kincaid, et al, 1983. EARTH. London,
England: Macdonald and Company.
SE Learning Through Science
TI EARTH
AU Macdonald Educational
; Kincaid, Doug
; Richards, Roy
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1983
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075575
LC none
AL K, 1, 2, 3, 4
RL 3,4,5,6
DS environment
; earth
; rocks
: minerals
: classification
; geology
; soil
; building
; crystals
; oil
: coal
: metals
: fossils
; earthquake
; volcanoes
; science process skills
; elementary science methods
AN In EARTH, the fundamental aspects of the science of geology are
introduced to children through various experiences with rocks, soils,
crystals, and the examination of earth processes. Children compare
buildings and samples formed in their local environment, do several
tests on a variety of rock samples, then explore the characteristics of
soil to get a feeling for the geologic world. Information and
activities about crystals, types of rocks, oil, gas, metals, and coal
extend the depth of the investigation. Teacher direction is a must as
much of the information shared in the activity cards may be new to many
children. The teacher's guide is inadequate in terms of planning and
implementing lessons.
TN There are 24-30 lessons, 30-45 minutes each
MT locally available, commercial suppliers
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NO 836
DE March 31, 1988
SU Electricity
; Magnetism
TY Activity Cards
; Teacher's Guide
CI Macdonald Educational, Doug Kincaid, et al, 1983. ELECTRICITY.
London, England: Macdonald and Company.
SE Learning Through Science
TI ELECTRICITY
AU Macdonald Educational
; Kincaid, Doug
; Richards, Roy
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1983
PG 24 activity cards
IL color drawings
BI no
IS 0-356-075583
LC none
AL K, 1, 2, 3, 4
RL 4,5,6
DS electricity
; magnetism
; circuits
; batteries
; energy
; science process skills
; elementary science methods
AN In ELECTRICITY, basic experiences with circuitry and
electromagnetism prepare children to tackle more difficult electrical
projects. Hands-on manipulation of wires, bulbs, and batteries lead
children to develop rules which help them to predict when a circuit is
open or closed. Various activities introduce switches, dimmers, and
the relationship between electricity and magnetism. The unit
culminates with a series of projects based upon the concepts learned in
previous activities. Activity cards can be used independently but
should be teacher directed if children have limited experience with
batteries and bulbs. The teacher's guide is limited in its use.
TN There are 24-30 lessons, 30-45 minutes each
MT locally available, commercial suppliers
Of in library
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NO 837
 DE March 31, 1988
 SU Natural Science
 : Ecology
 TY Activity Cards
 ; Teacher's Guide
 CI Macdonald Educational, Gwen Allen, et al, 1984. WHICH AND WHAT?.
 London, England: Macdonald and Company.
 SE Learning Through Science
 TI WHICH AND WHAT?
· AU Macdonald Educational
 ; Allen, Gwen
 ; Richards, Roy
 AF Schools Council
 ; Scottish Education Department
 PU Macdonald and Company
 LO London, England
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
 DP 1984
 PG 24 activity cards
 IL color drawings
 BI no
 IS 0-356-075591
 LC none
 AL K,1,2,3,4,5,6,7
 RL 3,4,5,6
 DS flowers
 ; plants
 : birds
 : trees
 : invertebrates
 : classification
 ; environment
 ; habitats
 ; science process skills
 ; elementary science methods
 AN In WHICH AND WHAT?, twelve activity cards provide an excellent field
 guide and identification scheme to help children become familiar with
 the flowers, trees, birds, and land and water invertebrates of Great
 Britain. Detailed color illustrations highlight the visual
 characteristics of the flowers and animals. Two color drawings of the
 leaf, fruit, and reproductive parts are presented for twenty-four of
 the most common English trees. The teacher's guide is sketchy and the
 activity cards can be easily used independently by children in the
 field.
 MT locally available, commercial suppliers
 OR in library
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**10 838** DE March 31, 1988 SU General Science ; Growth and Development TY Activity Cards ; Teacher's Guide CI Macdonald Educational, Margaret Collis, et al, 1984. TIME, GROWTH AND CHANGE. London, England: Macdonald and Company. SE Learning Through Science TI TIME, GROWTH AND CHANGE AU Macdonald Educational ; Collis, Margaret ; Kincaid, Doug ; Richards, Roy AF Schools Council ; Scottish Education Department PU Macdonald and Company LO London, England ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1984 PG 24 activity cards IL color drawings BI no IS 0-356-075605 LC none AL K,1,2,3,4,5,6,7 RL 3,4,5,6 DS change ; time ; growth ; development ; measurement ; reproduction : life cycle ; science process skills ; elementary science methods AN In TIME, GROWTH AND CHANGE, initial activities provide opportunities for children to build and work with primitive timers using water, sand, candles, and springs. Ways of measuring time are detailed with an emphasis on swinging, ticking and electronic methods. Investigations with seeds, trout, tadpoles, and chicks serve to illustrate the processes of growth and change. Experiments with kitchen powders, bread, sugar, and dairy products are provided to demonstrate changes in form over time. Much teacher direction is needed to ensure success in these investigations. The teacher's guide offers little help with planning and implementing daily lessons. TN There are 24-30 sessions, 30-45 minutes each MT locally available, commercial suppliers OR in library

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NO 839
DE March 31, 1988
SU Objectives in Science
TY Activity Cards
: Teacher's Guide
CI Macdonald Educational, Roy Richards, et al, 1985. GUIDE AND INDEX.
London, England: Macdonald and Company.
SE Learning Through Science
TI GUIDE AND INDEX
AU Macdonald Educational
; Richards, Roy
; Collis, Margaret
; Kincaid, Doug
AF Schools Council
; Scottish Education Department
PU Macdonald and Company
LO London, England
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1985
PG 24 activity cards
IL color drawings
BI no
IS 0-356-112586
LC none
AL Teachers
RL Teachers
DS objectives
; organization
; topics
: inquiry skills
; concepts
; evaluation
; science process skills
; elementary science methods
AN In LEARNING THROUGH SCIENCE, GUIDE AND INDEX, the educational
premises upon which the series is based are detailed and organized.
Charts provide an excellent reference to identify th scope and sequence
of learning objectives. Elementary science concepts and processes are
elucidated and explained. A valuable section on evaluation identifies
criteria through which the teacher may determine when children have
attained proficiencey in certain science education objectives.
TN
MT
OR in library
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NO 840 DE March 31, 1988 TY Teacher's Guide CI Macdonald Educational, Len Ennever, et al, 1972. WITH OBJECTIVES IN MIND. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI WITH OBJECTIVES IN MIND AU Macdonald Educational ; Ennever, Len ; Harlan, Wynne AF Schools Council ; Nuffield Foundation ; Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1972 PG 65 IL b&w photographs and diagrams IS 0-356-040097 LC none AL Teacher resource RL Teacher resource DS development ; objectives ; science education ; science process skills ; elementary science methods ; elementary science education ; stages of development ; child development ; Piaget : instructional strategies AN In WITH OBJECTIVES IN MIND, the author of the Macdonald Educational Science 5/13 series describe the philosophical basis of their program. They relate their beliefs about the value of science education for primary education and discuss the relationship of Piagetian stages jof development to science instruction. They detail the learning

objectives for the Science 5/13 program and show how these objectives were derived. An appendix includes an annotation for each unit in the program as well as a comprehensive chart which relates each learning

objective to a more general educational aim.

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NO 841
 DE March 31, 1988
 SU Elementary Science
 ; Senses
 TY Teacher's Guide
 CI Macdonald Educational, Roy Richards, 1972. EARLY EXPERIENCES.
 London, England: Macdonald and Company.
 SE Macdonald Educational 5/13
 TI EARLY EXPERIENCES
 AU Macdonald Educational
 ; Richards, Roy
· AF Schools Council
 ; Nuffield Foundation
 : Scottish Education Department
 PU Macdonald Educational
 LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1972
 PG 106
 IL b&w and color photographs and drawings
BI no
 IS 0-356-040054
LC 77-82994
AL K,1,2,
RL K,1,2
DS listening
 ; comparison
 ; growing
 ; plants
 ; soil
 ; sound
 ; kindergarten
 ; pattern
 : movement
 ; cooking
 ; light
 ; balancing
 ; science process skills
 ; elementary science methods
 AN In EARLY EXPERIENCES, children are encouraged to indulge their
 senses to find out the true meaning of science. Activities involve
 looking at things close at hand or in the sky, listening to sounds then
 trying to create sound, growing things then talking about change.
 Communication and hands-on involvement become the cornerstones for
 introductory science understanding. The guide provides many helpful
 suggestions for how to use everyday classroom and household items to
 stimulate scientific thought. A healthy sprinkling of children's
 drawings and charts provide ideas on appropriate record keeping for the
 early science explorer.
 TN non-sequential, 20-30 sessions, 30-45 minutes
 MT locally available, commercial suppliers
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NO 842
DE March 31, 1988
SU Time
TY Teacher's Guide
CI Macdonald Educational, Roy Richards, 1972. TIME: STAGES 1 AND 2
AND BACKGROUND. London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI TIME: STAGES 1 AND 2 AND BACKGROUND
AU Macdonald Educational
; Richards, Roy
AF Schools Council
: Nuffield Foundation
; Scottish Education Department
PU Macdonald Educational
LO London, England
; New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1972
PG 70
IL b&w photographs and 2 color drawings
IS 0-356-040089
LC
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6
DS time
: sequence
; timers
: clocks
; calendar
: moon
; science process skills
; elementary science methods
AN In TIME, children are presented with numerous activities to better
enable them to understand the concept of time.
                                                Initial activities
involve sequencing and the passage of time. The majority of the
experiences allow children to build and operate timers and clocks of
all sorts. Using the sun, water, sand, candles, and pendulums, many
opportunities are presented which can illustrate the passage of time.
Detailed information about mankind's understanding of time throught the
ages is included in a valuable appendix.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
MT locally available, commercial suppliers
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NO 843 DE March 31, 1988 SU Structures ; Building ; Architecture TY Teacher's Guide CI Macdonald Educational, Albert James, 1972. STRUCTURES AND FORCES: STAGES 1 AND 2. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI STRUCTURES AND FORCES: STAGES 1 AND 2 AU Macdonald Educational ; James, Albert AF Schools Council ; Nuffield Foundation ; Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1972 PG 100 IL b&w photographs and 2 color drawings BI yes IS 0-356-040070 LC 77-82991 AL K,1,2,3,4,5,6,7 RL 3,4,5,6 DS structures : architecture ; building ; bridges ; towers : tunnels ; dams ; forces ; animal structure ; patterns ; symmetry ; science process skills ; elementary science methods AN In STRUCTURE AND FORCES, ideas and activities are presented which build upon the natural interest that children have in buildings, bridges, tunnels and dams. Beginning with observation and discussion about structures in their own environment, children then use a variety of materials to build structures. They test their creations for strength and flexibility then look for relationships between people made structures and the structures of animals and plants. Diagrams and photographs are included that will aid the teacher as new building challenges are introduced. TN informal, 20-30 sessions, 30-45 minutes, non-sequential MT locally available, commercial suppliers OR in library

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NO 844
DE March 31, 1988
SU Energy
: Physics
TY Teacher's Guide
CI Macdonald Educational, Albert James, 1973. STRUCTURES AND FORCES:
STAGE 3. London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI STRUCTURES AND FORCES: STAGE 3
AU Macdonald Educational
; James, Albert
AF Schools Council
: Nuffield Foundation
; Scottish Education Department
PU Macdonald Educational
LO London, England
: New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1973
PG 90
IL b&w photographs and 2 color drawings
IS 0-356-041077
LC
AL 5,6,7
RL 6,7,8
DS power
; energy;
: inertia
; acceleration
; gravity
; motion
: movement
; shape
; strength
; tension
: surfaces
: forces
: structure
; science process skills
; elementary science methods
AN In STRUCTURE AND FORCES: STAGE 3, the concepts of power, force,
acceleration, inertia, and tensile strength are explored using concrete
models and materials. Activities that demonstrate energy changes are
illustrated using rotating objects, rolling objects, and thrown
objects. Methods are provided for measuring various changes and
children are asked to hypothesize about the effects of gravity and
velocity on these changes. Additional experiences are included which
involve children in the testing of liquids, springs, paper, and metals
with regard to their strength and elasticity. An appropriate guide for
teachers with some physics background and children with strong science
experiences.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
MT locally available, commercial suppliers
OR in library
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NO 845 DE March 31, 1988 SU Wood TY Teacher's Guide CI Macdonald Educational, Sheila Parker, 1972. WORKING WITH WOOD: Background Information. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI WORKING WITH WOOD: Background Information AU Macdonald Educational : Parker, Sheila AF Schools Council ; Nuffield Foundation : Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1972 PG 50 IL b&w photographs and 2 color drawings BI yes IS 0-356-040100 AL Teacher resource RL Teacher resource DS wood ; trees ; timber ; logging ; science process skills ; elementary science methods AN In WORKING WITH WOOD: BACKGROUND INFORMATION, factual information about the nature of wood is presented for teachers to complement the classroom activities suggested in WORKING WITH WOOD, STAGES 1 AND 2. Information is included about the structure of wood cells, how a tree makes wood, the differences between hardwood and softweed, and the mechanical, thermal, and electrical properties of weed. The durability of timber is discussed with regard to natural defects, and defects caused by living organisms and improper seasoning. This guide is a valuable resource for the teacher who plans extensive use of weed products in the classroom. TN informal, 20-30 sessions, 30-45 minutes, non-sequential

MT locally available, commercial suppliers

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NO 846
DE March 31, 1988
SU Wood
TY Teacher's Guide
CI Macdonald Educat: al, Sheila Parker, 1972. WORKING WITH WOOD:
Stages 2 and 3. London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI WORKING WITH WOOD: Stages 1 and 2
AU Macdonald Educational
; Parker, Sheila
AF Schools Council
: Nuffield Foundation
; Scottish Education Department
PU Macdonald Educational
LO London, England
; New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1972
PG 82
IL b&w photographs and 2 color drawings
BI no
IS 0-356-040119
AL K,1,2,3,4,5,6,7
RL 3,4,5,6
DS wood
; trees
; tools
; comparison
; models
; strength
; driftwood
: decay
; science process skills
; elementary science methods
AN In WORKING WITH WOOD: STAGES 1 AND 2, children work with a familiar
material to help them gain scientific understanding and general
personal growth. Instructions are provided for the safe use of tools
and the proper selection of materials to help children make a variety
of items out of wood. Investigations with rotting wood, driftwood, wood
and water, and wood strength present many opportunities for scientific
insight through experimentation. The activities encourage children to
research certain aspects of the use of wood, its sources, and its
relationship to trees. The guide includes many suggestions for
student-designed projects using wood.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
MT locally available, commercial suppliers
OR in library
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NO 847 DE March 31, 1988 SU Toys ; Elementary Science TY Teacher's Guide CI Macdonald Educational, Don Radford, 1972. SCIENCE FROM TOYS: Stages 1 and 2 and Background. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI SCIENCE FROM TOYS: Stages 1 and 2 and Background AU Macdonald Educational .; Radford, Don AF Schools Council : Nuffield Foundation ; Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1972 PG 92 IL b&w photographs and 2 color drawings BI yes IS 0-356-040062 AL K,1,2,3,4,5,6,7RL K,1,2,3,4,5,6,7 DS toys ; tops ; springs ; pumps : dolls ; electricity : boats ; propulsion ; floating ; bouncing : trains : cars : science process skills ; elementary science methods AN In SCIENCE FROM TOYS: STAGES 1 AND 2 AND BACKGROUND, simple experiences with a variety of homemade and commercial toys are used to demonstrate basic scientific concepts. Using springs, tops, music makers, pumps, and cars, teachers can introduce the ideas of pressure, gravity, vibration, inertia as well as ideas on time, distance, and speed. From dolls and boats to bouncing balls and trains, numerous activities are provided which pique scientific interest, demand critical thinking, and create an atmosphere where learning and playing are one in the same. The guide continually emphasizes the not-so-subtle link between toys and science which educators so often overlook. TN informal, 20-30 sessions, 30-45 minutes, non-sequential MT locally available, commercial suppliers OR in library

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NO 849
 DE March 31, 1988
 SU Elementary Science
 TY Teacher's Guide
 CI Macdonald Educational, Roy Richards, 1973. HOLES, GAPS AND
 CAVITIES: STAGES 1 AND 2. London, England: Macdonald and Company.
 SE Macdonald Educational 5/13
 TI HOLES, GAPS, AND CAVITIES: STAGES 1 AND 2
 AU Macdonald Educational
 : Richards, Roy
 AF Schools Council
.; Nuffield Foundation
 : Scottish Education Department
 PU Macdonald Educational
 LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
 DP 1973
 PG 90
 IL b&w photographs and 2 color drawings
 BI no
 IS 0-356-041085
 LC
 AL K,1,2,3,4,5,6,7
 RL 2,3,4,5,5
 DS holes
 : air
 ; sound
 : water
 ; eye
 ; light
 ; filtering
 ; breathing
 ; science process skills
 ; elementary science methods
 AN In HOLES, GAPS AND CAVITIES: STAGES 1 AND 2, activities focus on
 the inquisitive nature of children as the unusual topic of holes is
 investigated. Collecting, observing, measuring, creating and
 communicating about holes sets the stage for more in depth
 explorations. By filling holes with air, liquids, and light, children
 gain a new appreciation for the uniquesness of holes based on their
 size and shape. The eye and other cranial openings are examined as
 unique holes that have very specialized and important functions. A
 particularly well organized and thorough guide.
 TN informal, 20-30 sessions, 30-45 minutes, non-sequential
 MT locally available, commercial suppliers
 OR in library
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NO 850 DE March 31, 1988 SU Metals TY Teacher's Guide CI Macdonald Educational, Don Radford, 1973. METALS: BACKGROUND INFORMATION. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI METALS: BACKGROUND INFORMATION AU Macdonald Educational ; Radford, Don AF Schools Council ; Nuffield Foundation : Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1973 PG 76 IL b&w photographs and 2 color drawings BI yes IS 0-356-041042 AL Teacher resource RL Teacher resource DS metals ; hardness ; conduction : strength ; rust ; elements ; alloys ; science process skills ; elementary science methods AN In METALS: BACKGROUND INFORMATION, information on the composition, extraction, physical and chemical properties, and shaping of metals is provided to aid the teacher when using METALS, STAGES 1 AND 2. All aspects of the study of metals is covered in this in depth examination of some of the most important elements. Detailed sections on the most common metals aluminium, copper, lead, magnesium, nickel, tin, and zinc will support the teacher when questions are asked during classroom activities. The guide is illustrated with helpful charts and diagrams. TN informal, 20-30 sessions, 30-45 minutes, non-sequential MT locally available, commercial suppliers

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NO 852
 DE March 31, 1988
 SU Elementary Science
 ; Color
 TY Teacher's Guide
 CI Macdonald Educational, Sheila Parker, 1973. COLOURED THINGS:
 STAGES 1 AND 2. London, England: Macdonald and Company.
 SE Macdonald Educational 5/13
 TI COLOURED THINGS: STAGES 1 AND 2
 AU Macdonald Educational
 : Parker, Sheila
. AF Schools Council
 ; Nuffield Foundation
 : Scottish Education Department
 PU Macdonald Educational
 LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
 DP 1973
 PG 74
 IL color photographs and 2 color drawings
 BI no
 IS 0-356-043487
 AL K,1,2,3,4,5,6,7
 RL K, 1, 2, 3, 4, 5
 DS colors
 : senses
 ; comparison
 ; camouflage
 ; animal color
 ; plant color
 ; observation
 ; science process skills
 ; elementary science methods
 AN In COLOURED THINGS: STAGES 1 AND 2, observation skills are
 emphasized as children look at the world around them to scrutinize the
 spectrum and diversity of color. Activities encourage collecting,
 listing, comparing, and then communicating about what was seen and
 learned. Plants and animals are eyed for their unique colors and the
 environment is dissected to find the essence of color in everyday,
 familiar objects. The guide provides lead-in questions that will
 stimulate thought and direct discussion.
 TN informal, 20-30 sessions, 30-45 minutes, non-sequential
 MT locally available, commercial suppliers
 OR in library
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NO 853
 DE March 31, 1988
 SU Elementary Science
 TY Teacher's Guide
 CI Macdonald Educational, Albert James, 1973. LIKE AND UNLIKE: STAGES
 1, 2 AND 3. London, England: Macdonald and Company.
 SE Macdonald Educational 5/13
 TI LIKE AND UNLIKE: STAGES 1, 2 AND 3
 AU Macdonald Educational
 ; James, Albert
 AF Schools Council
·: Nuffield Foundation
 ; Scottish Education Department
 PU Macdonald Educational
 LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
 DP 1973
 PG 76
 IL b&w photographs and 2 color drawings
 IS 0-356-043509
 LC
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS sorting
 ; contrasting
 ; measuring
 ; senses
 ; properties
 ; sequences
 ; classification
 ; science process skills
 ; elementary science methods
 AN In LIKE AND UNLIKE: STAGES 1, 2 AND 3, children are involved in
 numerous activities which teach and reinforce the basic processes of
 science. After looking for similarities and differences among objects,
 children use their senses, measure, and sort to arrive at easily
 defined classification schemes. Objects with patterns, based upon
 sequences, are presented as well as activities which give children
 hands-on experience with the separation of materials into their
 component parts. This guide culminates with a summary chapter about
 the variety of uses and overall importance of sorting to the
 development of the scientific thinker.
 TN informal, 20-30 sessions, 30-45 minutes, non-sequential
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MT locally available, commercial suppliers

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NO 854
DE March 31, 1988
SU Elementary Science
; Physics
TY Teacher's Guide
CI Macdonald Educational, Don Radford, 1973. CHANGE: STAGES 1 AND 2
AND BACKGROUND. London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI CHANGE: STAGES 1 AND 2 AND BACKGROUND
AU Macdonald Educational
: Radford, Don
AF Schools Council
: Nuffield Foundation
: Scottish Education Department
PU Macdonald Educational
LO London, England
; New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1973
PG 86
IL baw photographs and 2 color drawings
BI yes
IS 0-356-041050
LC
AL K,1,2,3,4,5,6,7
RL 3,4,5,6,7
DS change
; flow charts
; weathering
; ecological change
; weather
; kitchen physics
; science process skills
; elementary science methods
AN In CHANGE: STAGES 1 AND 2 AND BACKGROUND, a variety of natural
phenomena and physical happenings are examined and used as
illustrations of the concept of change. Children look out of doors at
weather, plants, and toys, then become involved in monitoring changes
in their environment. Activities in the kitchen are presented which
have children wash objects, cool and heat things, then mix and measure
materials to understand simple changes that occur daily. The guide
supports the teacher's understanding of change with background
information and examples of detailing the work of other teachers with
the concept of change.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
MT locally available, commercial suppliers
OR in library
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NO 855
DE March 31, 1988
SU Physics
; Chemistry
TY Teacher's Guide
CI Macdonald Educational, Don Radford, 1973. CHANGE: STAGE 3.
London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI CHANGE: STAGE 3
AU Macdonald Educational
; Radford, Don
AF Schools Council
; Nuffield Foundation
; Scottish Education Department
PU Macdonald Educational
LO London, England
; New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1973
PG 112
IL b&w photographs and 2 color drawings
BI yes
IS 0-356-043460
AL 7,8,9,10,11,12
RL 7,8,9,10,11,12
DS energy
; change
; engines
; reactions
; secondary science methods
; dissolving
: fuels
: metals
; science process skills
; elementary science methods
AN In CHANGE: STAGE 3, activities are presented which give children
not only experience with a variety of chemical, electrical, and
physical changes but also provides in depth specific knowledge about
these processes. Initial lessons lend children to see the importance
of energy changes and how these changes are ultimately related to the
sun's energy. Numerous experiments illustrate the properties of
chemical and electrical change and how energy produced from these
changes can be used. The guide is conprehensive but the teacher will
need a solid understanding of these topics to successfully engage the
children.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
MT locally available, commercial suppliers
OR in library
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NO 856
DE March 31, 1988
SU Elementary Science
; Botany
TY Teacher's Guide
CI Macdonald Educational, Sheila Parker, 1973. TREES: STAGES 1 AND 2.
London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI TREES: STAGES 1 AND 2
AU Macdonald Educational
: Parker, Sheila
AF Schools Council
: Nuffield Foundation
; Scottish Education Department
PU Macdonald Educational
LO London, England
; New York, NY
; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1973
PG 78
IL b&w photographs and 2 color drawings
BI no
IS 0-356-043479
LC 77-83008
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4,5,6,7
DS trees
; growth
; leaves
; seeds
: fruits
: plants
; change
: seasons
; science process skills
; elementary science methods
AN In TREES: STAGES 1 AND 2, the observation and investigation of this
most abundant and important resource provides limitless opportunities
to engage children in the basic processes of science. Examination
begins with activities using leaves, fruits, and seeds. Children
choose a tree and come to know it through the seasons by exploring its
structure, noticing changes, and finding out about the animal community
that lives in, on, and around it. Information abounds which continually
encourages children to see the special place that trees occupy in the
environmental scheme.
TN informal, 20-30 sessions, 30-45 minutes, non-sequential
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MT locally available, commercial suppliers

O 857 DE March 31, 1988 SU Elementary Science TY Teacher's Guide CI Macdonald Educational, Mary Horn, 1974. CHILDREN AND PLASTICS: STAGES 1 AND 2 AND BACKGROUND. London, England: Macdonald and Company. SE Macdonald Educational 5/13 TI CHILDREN AND PLASTICS: STAGES 1 AND 2 AND BACKGROUND AU Macdonald Educational : Horn, Mary AF Schools Council ; Nuffield Foundation ; Scottish Education Department PU Macdonald Educational LO London, England ; New York, NY ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301 DP 1974 PG 108 IL b&w photographs and 2 color drawings BI no IS 0-356-043525 LC 77-83008 AL K,1,2,3,4,5,6,7 RL 4,5,6,7 DS trees ; growth ; leaves ; seeds ; fruits ; plants : change ; seasons ; science process skills ; elementary science methods AN In CHILDREN AND PLASTICS: STAGES 1 AND 2 AND BACKGROUND, a common, everyday material is used as the stimulus to get children involved in a variety of scientific processes. The teacher raises questions about the properties of plastic then children propose inquiries, design experiments, communicate, measure, and solve problems as they investigate the strength, bendability and stretchability of plastic bags, bottles, and threads. The uses of plastic are explored and children set up tests to compare how different plastic clothes repel water, stay warm, or get clean. The background information included in the guide will provide the teacher with enough support so that the learning experiences can be successfully directed. TN informal, 20-30 sessions, 30-45 minutes, non-sequential MT locally available, commercial suppliers OR in library

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NO 858
DE March 31, 1988
SU Elementary Science
 ; Self-concept
TY Teacher's Guide
CI Macdonald Educational, Roy Richards, 1974. OURSELVES: STAGES 1 AND
2. London, England: Macdonald and Company.
SE Macdonald Educational 5/13
TI OURSELVES: STAGES 1 AND 2
AU Macdonald Educational
 ; Richards, Roy
· AF Schools Council
 ; Nuffield Foundation
 : Scottish Education Department
PU Macdonald Educational
LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
DP 1973
PG 64
IL b&w photographs and 2 color drawings
BI no
IS 0-356-043495
LC 77-83008
AL K,1,2,3,4,5,6,7
RL K,1,2,3,4
DS measuring
 ; human variation
 : self-concept
 ; record keeping
 ; science process skills
 ; elementary science methods
AN In OURSELVES: STAGES 1 AND 2, children are involved in the first
hand investigation of the many facets that make up their uniqueness as
 an individual. Working together with their classmates, children
measure and record lots of information about their body parts. They
 compare their findings and discuss the variation that is seen in all
 human beings. Many opportunities are provided for children to write
 about their findings. The guide suggests numerous activities, all of
which will involve children in scientific investigations but more
 importantly give them a better understanding of their unique place in
 the human race.
 TN informal, 20-30 sessions, 30-45 minutes, non-sequential
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MT locally available, commercial suppliers

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NO 859
 DE March 31, 1988
 SU Invertebrate
 : Elementary Science
 TY Teacher's Guide
 CI Macdonald Educational, Sheila Parker, 1973. MINIBEASTS: STAGES 1
 AND 2. London, England: Macdonald and Company.
 SE Macdonald Educational 5/13
 TI MINIBEASTS: STAGES 1 AND 2
 AU Macdonald Educational
; Parker, Sheila
 AF Schools Council
 : Nuffield Foundation
 : Scottish Education Department
 PU Macdonald Educational
 LO London, England
 ; New York, NY
 ; Teacher's Laboratory, 214 Main Street, Brattleboro, VT 05301
 DP 1973
 PG 102
 IL b&w photographs and 2 color drawings
 BI yes
 IS 0-356-041069
 LC
 AL K,1,2,3,4,5,6,7
 RL K,1,2,3,4,5,6,7
 DS invertebrates
 : insects
 ; collecting
 ; observing
 ; animal behavior
 ; development
 ; growth
 : life cycles
 ; science process skills
 ; elementary science methods
 AN In MINIBEASTS: STAGES 1 AND 2, a conprehensive plan is presented
 for the location, capture, care, and study of land and water
 invertebrates. Children observe with a keen eye, then record and
 discuss the characteristics of the creatures that are collected.
 Investigations are designed to learn about how minibeasts move, eat,
 reproduce, and why they behave in certain idiosyncratic ways.
 Strategies are presented to help keep the creatures alive so that
 observations can be made at all stages of their development. The guide
 includes a valuable appendix with an identification chart as well as
 suggestions for constructing appropriate minibeast habitats.
 TN informal, 20-30 sessions, 30-45 minutes, non-sequential
 MT locally available, commercial suppliers
 OR in library
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NO 867
DE April 4, 1988
ĊA
SU Science Process Skills
TY Teacher's Guide
CI Conceptually Oriented Program in Elementary Science (COPES), 1972.
TEACHER'S GUIDE FOR GRADE THREE. New York: New York University.
Center for Field Research and School Services.
SE Conceptually oriented Program in Elementary Science
TI TEACHER'S GUIDE FOR GRADE THREE
AU Conceptually Oriented Program in Elementary Science (COPES)
AF New York University Center for Educational Research and Field
Services
: U.S. Office of Education Bureau of Research
PU New York University, Center for Educational Research and Field
LO New York
DP 1972
PG 403
IL b&w line drawings
BI no
AV out of print, available on CO-ROM "Science Helper K-8", University
of Florida and PC-SIG, Sunnyvale CA
PR CD-ROM: $195.00
AL 3
RL 3,4
DS science process skills
; interaction
; change
; electricity
: heat
: water
; energy
; energy transfer
; forces and motions
; gravity
: weight
: soil
; classification
; chemistry
; solutions
; variability
; population
; estimation
; averaging
; graphs
; batteries
: bulbs
: wires
: conductivity
; variables
; starch
AN The COPES TEACHER'S GUIDE FOR GRADE THREE builds on prior learning
in science, and introduces skills needed for later grades. Students
work with mixtures and solutions, identifying characterisics of
constituent components and how they interact. They experiment with
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balanced forces, investigate the variability of populations and calculate averages. Then, in explorations of interaction and change, they build electrical circuits and conduct heat transfer experiments with water. There are twenty-six sequential lessons with assessments and suggested equipment lists. Running commentary provides science background information, classroom management techniques, and ideas for extension.

TN 26 lessons, 30-60 minutes MT locally available

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NO 868
DE April 4, 1988
CA
SU Science Process Skills
TY Teacher's Guide
CI Conceptually Oriented Program in Elementary Science (COPES), 1972.
TEACHER'S GUIDE FOR GRADE FOUR. New York: New York University, Center
for Field Research and School Services.
SE Conceptually oriented Program in Elementary Science
TI TEACHER'S GUIDE FOR GRADE FOUR
AU Conceptually Oriented Program in Elementary Science (COPES)
AF New York University Center for Educational Research and Field
Services
; U.S. Office of Education Bureau of Research
PU New York University, Center for Educational Research and Field
Services
LO New York
DP 1972
PG 507
IL b&w line drawings
BI no
AV out of print, available on CO-ROM "Science Helper K-8", University
of Florida and PC-SIG, Sunnyvale CA
PR CD-ROM: $195.00
AL 4
RL 4,5,6
DS science process skills
; heat
; water
; ice
: heat transfer
: molecules
; variables
; variability
; statistics
: population
; estimation
; averages
; graphs
; graphing
; weight
: energy
; energy transfer
: filtration
; seeds
; histograms
AN The COPES TEACHER'S GUIDE FOR GRADE FOUR focuses on conservation of
matter and energy. Children investigate the effects of change or
interaction on states of matter in closed or open systems, observing
weight of solid and melted ice cubes, the dry weight of peeled and
unpeeled appples, and mold growth on bread in a plastic bag.
conduct experiments with heat transfer in water, and investigate
transport of molecules through membranes, using red cabbage pigment,
starch, vinegar, food coloring, and ammonia. The students continue to
study and graph variability and frequency of distribution, as they
calculate averages for peas in a pod, ages of students, and try to
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predict spins of a game wheel. There are thirty-three lessons with suggested assessments and lists of supplies. A running commentary supplements the instructions, with advice on classroom management, science background information, and extension ideas.

TN 33 lessons, 30-60 minutes MT locally available OR in library

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NO 869
DE April 4, 1988
 SU Science Process Skills
TY Teacher's Guide
CI Conceptually Oriented Program in Elementary Science (COPES), 1973.
TEACHER'S GUIDE FOR GRADE FIVE. New York: New York University, Center
 for Field Research and School Services.
SE Conceptually oriented Program in Elementary Science
TI TEACHER'S GUIDE FOR GRADE FIVE
AU Conceptually Oriented Program in Elementary Science (COPES)
AF New York University Center for Educational Research and Field
Services
 ; U.S. Office of Education Bureau of Research
PU New York University, Center for Educational Research and Field
Services
LO New York
DP 1973
PG 453
IL b&w line drawings
AV out of print, available on CO-ROM "Science Helper K-8", University
of Florida and PC-SIG, Sunnyvale CA
PR CD-ROM: $195.00
AL 5
RL 5.6.7
DS science process skills
: statistics
 ; probability
 ; statistical method
 ; energy
 ; heat
 ; light
 ; heat energy
 ; light energy
 ; energy transformation
 ; forces and motions
 ; acceleration
 ; solutions
 ; chemistry
 ; crystals
 ; cells
 ; microscopes
 ; plants
 : animals
AN The COPES TEACHER'S GUIDE FOR GRADE FIVE applies previously learned
 science process skills to new activities with microscopes, mechanical
 energy, energy transformation, and statistical sampling. Students
 examine the structure of plant and animal cells; investigate potential
 and kinetic energy as they experiment with weights and forces; explore
 the role of temperature variation in solution and precipitation of
 salts in water; convert light energy to heat energy; and apply
 statistical methods to experiments with marbles, dice, and seeds.
 Twenty-one lessons are accompanied by assessment tools and supply
 lists. A running commentary supports the instructions with tips on
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classroom management, explanations of science content, and suggestions

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NO 870
DE April 4, 1988
SU Science Process Skills
TY Teacher's Guide
CI Conceptually Oriented Program in Elementary Science (COPES), 1973.
TEACHER'S GUIDE FOR GRADE SIX. New York: New York University, Center
for Field Research and School Services.
SE Conceptually oriented Program in Elementary Science
TI TEACHER'S GUIDE FOR GRADE SIX
AU Conceptually Oriented Program in Elementary Science (COPES)
AF New York University Center for Educational Research and Field
Services
; U.S. Office of Education Bureau of Research
PU New York University, Center for Educational Research and Field
Services
LO New York
DP 1973
PG 503
IL b&w line drawings
BI no
AV out of print, available on CO-ROM "Science Helper K-8", University
of Florida and PC-SIG, Sunnyvale CA
PR CD-ROM: $195.00
AL 6
RL 6,7,8
DS science process skills
; environment
; ecology
: soil
: water
; evaporation
; growth
; population
; statistics
; probability
; chemical bonding
; chemistry
; heat
; heat transfer
; pendulums
; conservation of energy
; energy
; crystals
; minerals
; diffusion
; liquids
AN The COPES TEACHER'S GUIDE FOR GRADE SIX presents activities
culminating the conceptual schemes of the entire series. Students
investigate the interactions between plants and their soil or water
environment; observe the role of heat in chemical bonding of salts;
examine the crystalline structure of copper; test the transfer of heat
energy in liquids and solids; apply statistical methods to random
diffusion of molecules in water or gelatin, or to children's movements
in the classroom; and use pendulums to explore the possibility of
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'perpetual' conservation of mechanical energy. There are thirty-two

lessons accompanied by assessment tools, supply lists, advice on classroom management, and science background information.

TN 32 lessons, 30-60 minutes

MT locally available

OR in library

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NO 871
DE April 4, 1988
SU Science Process Skills
; Physical Science
TY Teacher's Guide
CI Conceptully Oriented Program in Elementary Science (COPES), 1972
(1967). THE TEACHER'S GUIDE FOR A CONSERVATION OF ENERGY SEQUENCE,
Fourth Edition. New York University, School of Education Center for
Field Research and School Services.
SE Conceptully Oriented Program in Elementary Science (COPES)
TI THE TEACHER'S GUIDE FOR A CONSERVATION OF ENERGY SEQUENCE, Fourth
AU Conceptully Oriented Program in Elementary Science (COPES)
AF New York University Center for Educational Research and Field
Services
PU New York University, School of Education Center for Field Research
and School Services
LO New York
DP 1972
PG
IL b&w line drawings
AV out of print, available on CD-ROM "Science Helper K-8", University
of Florida and PC-SIG, Sunnyvale, CA
PR CD-ROM: $195.00
AL K,1,2,3,4,5,6
RL K,1,2,3,4,5,6,7,8
DS science process skills
: measurement
: classification
; change
; reactions
: interactions
: heat
; thermometer
: temperature
; variables
; population
; conservation of matter
: variability
; terrarium
; aquarium
: solids
; liquids
; gases
; size
; shape
; texture
; quantity
; odor
; color
; seeds
; plants
; gravity
; forces and motions
; magnets
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: magnetism
 ; melting
 ; graphs
 ; graphing
 ; sensory perception
 ; sound
 ; vibration
 ; taste
 ; chromatography
 ; seeds
 ; maps
; mapping
 ; interaction
 ; electricity
 ; energy
 ; energy transfer
 ; water
 ; population
 ; estimation
 ; averaging
 ; batteries
 ; bulbs
 ; wires
 ; condutivity
 ; variables
  ; starch
  ; soil
  ; weight
  ; solutions
  : ice
  ; filtration
  ; histograms
  : statistics
  ; heat transfer
  ; energy transformation
  ; probability
  ; statistical method
  ; microscopes
  ; crystals
  ; cells
  ; chemistry
  ; acceleration
  ; light energy
  ; forces and motions
  : environment
  ; ecology
  : chemical bonding
  ; pendulums
   ; conservation of energy
   ; minerals
   ; diffusion
   : liquids
   ; pendulums
   ; growth
   AN The COPES TEACHER'S GUIDE FOR AN CONSERVATION OF ENERGY SEQUENCE is
   based on the same five major concepts that serve as the foundation for
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NO 872
DE April 4, 1988
SU
TY Series Handbook
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1974. THE USMES GUIDE. Newton.
MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI THE USMES GUIDE
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1974
PG 132
IL b&w diagrams
BI no
IS
LC
AL Teacher Resource
RL Teacher Resource
DS
AN The USMES GUIDE is a compilation of materials which may be used for
long-range planning of a curriculum including the USMES program. In
addition to the basic information about the project and the units, it
contains charts assessing the strengths of the various units in terms
of their possible math, science, social science, and language content.
TN
MT
RE
OR in library
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NO 873
DE April 4, 1988
 TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1974. USMES DESIGN LAB MANUAL.
Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI USMES DESIGN LAB MANUAL
AU Unified Science and Mathematics for Elementary Schools (USMES)
 ; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1974
PG 121
IL b&w line drawings
BI yes
IS
LC
AL Teacher Resource
RI.
DS
AN The DESIGN LAB MANUAL is a major focus of the USMES philosophy,
combining a range of physical resources and expertise in solving
problems. The Design Lab provides a central location for tools and
materials, and a work space where apparatus may be constructed and
tested without disrupting ongoing classroom activities. The USMES
DESIGN LAB MANUAL includes chapters on the aspects of space, cost,
scheduling and use, safety, staffing, staff training, and teacher
orientation as well as an inventory of Design Lab tools and supplies.
TN
MT
RE
OR in library
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other Copes teaching guides: the structural units of the universe, interaction and change, the conservation of energy, the degradation of energy, and the statistical view of nature. Students are encouraged to develop skills in observation, classification, description, measurement, hypothesis, experimentation, and analysis as they investigate the characteristics and interactions of matter and energy. There are 122 lessons ranging from kindergarten to sixth grade, and accompanied by worksheets and materials lists. Rather than printing concise instructions in column form alongside more detailed running commentary as in other COPES editions, this volume integrates the two, creating more attractive, but somewhat less manageable reading for teachers.

TN MT locally available OR in library

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NO 877
DE April 4, 1988
SU Plants
: General Math
: Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1975. GROWING PLANTS. Newton, MA:
Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI GROWING PLANTS
AU Unified Science and Mathematics for Elementary Schools (USMES)
: Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1975
PG 122
IL b&w photos and line drawings
BI yes
IS
LC
AL 2,3,4,5,6
RL 2,3,4,5,6
DS animals
; ecology
; fractions
; graphing
; growth
; integrated curriculum
; mapping
; matter
: measurement
; nutrition
; percents
; plants
: propagation
; ratios
; scaling
; sets
; science process skills
; whole number operations
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children.
                                                         The GROWING
PLANTS challenge: Grow plants for ----, (Children determine the
specific purpose, such as for gifts, for transplanting into a garden,
for selling, etc.). The children's interest in growing plants lead to
experimentation with plants under special conditions, or transplanting
plants grown during work on the unit into gardens or parks. The
teacher's guide includes a range of possible activities, however, no
specific lesson plans are provided. A list of questions to stimulate
further investigation or more analysis is included.
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE CLASSROOM DESIGN
OR in library
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NO 878
DE April 4, 1988
SU General Math
: Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1975. CLASSROOM MANAGEMENT.
Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI CLASSROOM MANAGEMENT
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1975
PG 140
IL b&w charts and graphs
BI yes
IS
LC
AL 1,2,3,4,5,6
RL 1,2,3,4,5,6
DS estimation
; graphing
; integrated curriculum
: matter
: measurement
; sets
; science process skills
: sound
: statistics
; whole number operations
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children. The CLASSROOM
MANAGEMENT challenge: Find ways of developing and maintaining a
well-run classroom. This challenge can be introduced easily at the
beginning of the school year before class routines have been
established. It can also be used effectively to solve problems of
management that occur during the course of the year. The teacher's
guide includes a range of possible activities, however, no specific
lesson plans are provided. A list of questions to stimulate further
investigation or more analysis is included.
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE CLASSROOM DESIGN
OR in library
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NO 879
DE April 4, 1988
 SU General Math
 ; Science Process Skills
 TY Teacher's Guide
 CI Unified Science and Mathematics for Elementary Schools (USMES),
 Education Development Center (EDC). 1975. WAYS TO LEARN/TEACH.
Newton, MA: Education Development Center, Inc.
 SE Unified Science and Mathematics for Elementary Schools (USMES)
TI WAYS TO LEARN/TEACH
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
 AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1975
 PG 114
 IL b&w graphs
 BI yes
IS
LC
AL 2,3,4,5,6,7,8
RL 2,3,4,5,6,7,8
DS fractions
 ; graphing
 ; integrated curriculum
 ; percents
 ; ratios
 ; science process skills
 ; statistics
 : whole number operations
 AN Each USMES unit is based on a challenge that presents a school or
 community related problem to be solved by the children. The WAYS TO
LEARN/TEACH challenge: Find the best way to learn or teach someone
 else certain things. This challenge may be introduced as the class
 prepares to study some new topic. Children are involved in class
 discussions and list possible ways to learn the same thing. As they
 investigate the various alternatives, they are involved in collecting
 and interpreting data to support the overall effectiveness of each
method. The teacher's guide includes a range of possible activities,
 however, no specific lesson plans are provided. A list of questions to
 stimulate further investigation or more analysis is included.
 TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE CLASSROOM MANAGEMENT
 ; CLASSROOM DESIGN
 OR in library
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NO 887
DE April 4, 1988
SU Physical Science
 ; General Math
 : Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1973. PLAY AREA DESIGN AND USE.
Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI PLAY AREA DESIGN AND USE
AU Unified Science and Mathematics for Elementary Schools (USMES)
 ; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1973
PG 164
IL baw line drawings
BI yes
IS
LC
AL 1,2,3,4,5,6,7,8
RL 1,2,3,4,5,6,7,8
DS cost analysis
; estimation
; geometry
 ; graphing
; integrated curriculum
; mapping
; measurement
; orders of magnitude
; scale models
; science process skills
 ; sets
 ; statistics
 ; whole number operations
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children. The PLAY AREA
DESIGN AND USE challenge: Recommend and try to have changes made which
would improve the design or use of your school's play area. Children
establish priorities of areas needing improvement. They assess the
suitability of the proposed improvements and also consider costs and
availability of materials. They make models, graph survey results, and
gain an improved play area. The teacher's guide contains no specific
lesson plans but does include teachers' logs describing the use of this
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE DESIGNING FOR HUMAN PROPORTIONS
OR in library
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NO 894
DE April 4, 1988
SU Physical Science
; General Math
: Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1973. BURGLAR ALARM DEVICE.
Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI BURGLAR ALARM DEVICE
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1973
PG 108
IL b&w line drawings
BI to be written
IS
LC
AL 3,4,5,6,7,8
RL 3,4,5,6,7,8
DS physical science
; electricity
; circuitry
; schematics
; logic
; scaling
; integrated curriculum
; science process skills
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children. The BURGLAR
ALARM DESIGN challenge: Build a burglar alarm which will give adequate
warning. Children proceed from simple alarms with warning lights and
buzzers to the more complex with mechanical improvements. The
teacher's guide contains no specific lesson plans but does include
teachers' logs describing the use of this challenge.
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE CONSUMER RESEARCH-PRODUCT TESTING
: ELECTROMAGNET DEVICE DESIGN
OR in library
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0 895 DE April 5, 1988 SU Science Process Skills TY Teacher's Guide CI Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH), 1982. MEASUREMENT. Berkeley, CA: University of California, Lawrence Hall of Science Center for Multisensory Learning. SE Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) TI MEASUREMENT AU Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) AF Lawrence Hall of Science Center for Multisensory Learning, University of California ; U.S. Office of Education, Department of Health, Education, and Welfare PU University of California, Lawrence Hall of Science Center for Multisensory Learning LO Berkeley, CA DP 1982 PG [36] IL b&w line drawings BI no PR Kit: \$174.00/157.00 Folioguide: \$5.00 April, 1988 RL 4,5,6,7 DS science process skills ; measurement ; metric system : volume ; elementary science methods : weight ; temperature : thermometers ; visual impairment ; physical handicaps ; learning disability AN The MEASUREMENT module introduces the metric system through four activities, entitled The First Straw, Take Me to Your Liter, Weight Watching, and The Third Degree. Students learn the importance of standard units of measure, as they investigate length, volume, weight, and temperature of familiar items, using tools that are adapted to the needs of children with visual impairments or other physical handicaps. The instructions provide science background information, and contain many helpful suggestions for facilitating successful learning experiences among all types of learners. A kit accompanies the module, with student worksheets in either print or braille. TN 5 lessons, 30-90 minutes each MT Kit from Lawrence Hall of Science OR in library

888 April 4, 1988 SU General Science ; Science Process Skills TY Teacher's Guide CI Unified Science and Mathematics for Elementary Schools (USMES), Education Development Center (EDC). 1973. LUNCH LINES. Newton, MA: Education Development Center, Inc. SE Unified Science and Mathematics for Elementary Schools (USMES) TI LUNCH LINES AU Unified Science and Mathematics for Elementary Schools (USMES) ; Education Development Center (EDC) AF National Science Foundation PU Education Development Center, Inc. LO 55 Chapel Street, Newton, MA DP 1973 PG 148 IL b&w graphs BI to be written IS LC AL 1,2,3,4,5,6,7,8 RL 1,2,3,4,5,6,7,8 DS budgets ; statistics ; fractions ; percents ; geometry ; graphs ; integrated curriculum ; mapping ; measurement ; science process skills ; whole number operations AN Each USMES unit is based on a challenge that presents a school or community related problem to be solved by the children. The LUNCH LINES challenge: Recommend and try to have changes made which would improve the service in your lunchroom. Children are involved in observing the present cafeteria situation, collecting relevant data, drawing conclusions and recommending improvements. The teacher's guide contains no specific lesson plans but does include teachers' logs describing the use of this challenge. TN 2-3 sessions per week, 30-45 minutes per session MT locally available RE PLAY AREA DESIGN AND USE : CLASSROOM DESIGN OR in library

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NO 889
  April 4, 1988
SU Safety
; General Math
; Science Process Skills
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1973. TRAFFIC FLOW. Newton, MA:
Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
AU Unified Science and Mathematics for Elementary Schools (USMES)
 ; Education Development Center (EDC)
AF National Science Foundation
 PU Education Development Center, Inc.
 LO 55 Chapel Street, Newton, MA
 DP 1973
 PG 156
 IL baw line drawings
 BI to be written
  IS
  I.C
  AL 1,2,3,4,5,6,7,8
  RL 1,2,3,4,5,6,7,8
  DS geometry
  ; graphs
  ; integrated curriculum
  ; safety
   ; budgets
   ; statistics
   ; estimation
   ; fractions
   ; percents
   ; measurement
   ; science process skills
   AN Each USMES unit is based on a challenge that presents a school or
   community related problem to be solved by the children. The TRAFFIC
   FLOW challenge: Recommend and try to have a new road design or a
    system for rerouting traffic accepted so that cars and trucks can move
    safely at a reasonable speed through a busy intersection near your
    school. The children assess community traffic patterns and make
    first-hand observations to obtain data. They predict the feasibility of new designs in terms of safety, cost, and minimum use of land. The
    teacher's guide contains no specific lesson plans but does include
    teachers' logs describing the use of this challenge.
    TN 2-3 sessions per week, 30-45 minutes per session
    MT locally available
    RE PLAY AREA DESIGN AND USE
     ; BICYCLE TRANSPORTATION
     ; PEDESTRIAN CROSSINGS
     OR in library
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NO 890
 E April 4, 1988
SU Attributes
: General Math
: Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1973. DESCRIBING PEOPLE Newton,
MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI DESCRIBING PEOPLE
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1973
PG 144
IL b&w line drawings
BI to be written
IS
LC
AL 1,2,3,4,5,6,7,8
RL 1,2,3,4,5,6,7,8
DS attributes
; graphs
; integrated curriculum
; statistics
; venn diagrams
: sets
: measurement
; science process skills
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children.
DESCRIBING PEOPLE challenge: Find out what is the best information to
put in a description so that a person can be quickly and easily
identified. Children look for a systematic way to identify a person in
real situations by specifying certain physical characteristics. They
test their hypotheses by a Sit-Down game or Venn diagrams. They also
investigate different identification problems. The teacher's guide
contains no specific lesson plans but does include teachers' logs
describing the use of this challenge.
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TN 2-3 sessions per week, 30-45 minutes per session

MT locally available

OR in library

RE DESIGNING FOR HUMAN PROPORTIONS

```
NO 891
DE April 4, 1988
SU General Math
: General Science
; Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1974. DESIGNING FOR HUMAN
PROPORTIONS. Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI DESIGNING FOR HUMAN PROPORTIONS
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1974
PG 140
IL b&w line drawings and graphs
BI to be written
IS
LC
AL 3,4,5,6,7,8
RL 3,4,5,6,7,8
DS graphing
; integrated curriculum
; fractions
; scaling
; biology
: statistics
; measurement
; science process skills
; ratios
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children. The DESIGNING
FOR HUMAN PROPORTIONS challenge: Find a way to design or make changes
in things that you use or wear so that they will be a good fit. After
discussing and accessing what needs changing, children are involved in
determining the sizes of items needed for a varied population.
Measurement plays a key role. The teacher's guide contains no specific
lesson plans but does include teachers' logs describing the use of this
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE MANUFACTURING
: ADVERTISING
: DESCRIBING PEOPLE
: CONSUMER RESEARCH-PRODUCT TESTING
OR in library
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NO 892
DE April 4, 1988
SU General Math
 ; Earth Science
: Science Process Skills
TY Teacher's Guide
CI Unified Science and Mathematics for Elementary Schools (USMES),
Education Development Center (EDC). 1973. WEATHER PREDICTIONS.
Newton, MA: Education Development Center, Inc.
SE Unified Science and Mathematics for Elementary Schools (USMES)
TI WEATHER PREDICTIONS
AU Unified Science and Mathematics for Elementary Schools (USMES)
; Education Development Center (EDC)
AF National Science Foundation
PU Education Development Center, Inc.
LO 55 Chapel Street, Newton, MA
DP 1973
PG 124
IL b&w line drawings
BI yes
IS
LC
AL 2,3,4,5,6,7,8
RL 2,3,4,5,6,7,8
DS geography
; graphing
; integrated curriculum
; approximation
: earth science
 ; air pressure
; temperature
; humidity
: clouds
; precipitation
; wind speed
; wind direction
: weather
; measurement
; science process skills
AN Each USMES unit is based on a challenge that presents a school or
community related problem to be solved by the children. The WEATHER
PREDICTIONS challenge: What do you think the weather will be this
afternoon...tomorrow? Find out what information helps you most in
accurately preicting the weather. Children make their own weather
instruments as they try to discover the factors that influence weather.
Predictions are correlated with observations. The teacher's guide
contains no specific lesson plans but does include teachers' logs
describing the use of this challenge.
TN 2-3 sessions per week, 30-45 minutes per session
MT locally available
RE DICE DESIGN
OR in library
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NO 900 DE April 5, 1988 SU Physical Science : Chemistry TY Teacher's Guide CI Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH), 1981. MIXTURES AND SOLUTIONS. Berkeley, CA: Lawrence Hall of Science Center for Multisensory Learning, University of California. SE Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) TI MIXTURES AND SOLUTIONS AU Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) AF Lawrence Hall of Science Center for Multisensory Learning, University of California ; U.S. Office of Education, Department of Health, Education, and Welfare PU University of California, Lawrence Hall of Science Center for Multisensory Learning LO Berkeley, CA DP 1981 PG [35] IL b&w line drawings BI no PR Kit: \$114.00/70.00 Folio guide: \$5.00 April, 1988 RL 4,5,6,7 DS elementary science methods ; visual impairment ; physical handicaps ; learning disabilities ; chemistry : chemical reactions : solutions ; saturated solutions ; mixtures ; evaporation ; chemical concentration AN In MIXTURES AND SOLUTIONS, children are introduced to basic chemistry through four sequential activities, entitled Separating Mixtures, Concentration, Reaching Saturation, and The Fizz Quiz. After making mixtures of water and various solids, students attempt to separate them with screens, filters, or evaporation. The weights of salt solutions of different concentrations are compared, and students attempt to determine the amount of solid required to saturate a solution. In the final activity, students observe that a combination of two solutions creates a reaction quite different than what might have been expected from observation of either solution alone. The

module contains instructions for conducting fun, successful lessons for

students of varying physical capabilities, and science background

information is also included. A kit accompanies the unit.

TN 5 lessons, 30-90 minutes each MT Kit from Lawrence Hall of Science OR in library

NO 901 DE April 5, 1988 SU Life Science : Ecology TY Teacher's Guide CI Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH), 1983. ENVIRONMENTS. Berkeley, CA: Lawrence Hall of Science Center for Multisensory Learning, University of California. SE Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) TI ENVIRONMENTS AU Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) AF Lawrence Hall of Science Center for Multisensory Learning, University of California ; U.S. Office of Education, Department of Health, Education, and PU University of California, Lawrence Hall of Science Center for Multisensory Learning LO Berkeley, CA DP 1983 PG [34] IL b&w line drawings BI no PR Kit: \$64.00/42.00 Folio guide: \$5.00 April, 1988 RL 4,5,6,7 DS elementary science methods ; environment ; habitat ; isopods : crustaceans ; pill bugs ; plants : weeds ; seeds ; visual impairment ; physical handicaps ; learning disabilities AN The ENVIRONMENTS module consists of four activities, entitled Environmental Plantings, Sea What Grows, Isopods, and The Wanted Weed. Students investigate the concept of environment, and learn what factors in an organism's environment make it an appropriate place in which to live. Controlled experiments test for water requirements and salt tolerance in plants, and for environmental preferences among isopods. A culminating activity takes children to the schoolyard for close observation of local weeds, their structure and habitat. instructions contain science background, as well as helpful suggestions for creating successful learning experience for students of varied physical abilities. A kit accompanies the module. TN 5 lessons, 30-90 minutes each MT Kit from Lawrence Hall of Science

NO 903 DE April 5, 1988 SU Physical Science TY Teacher's Guide CI Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH), 1983. ENVIRONMENTAL ENERGY. Berkeley, CA: Lawrence Hall of Science Center for Multisensory Learning, University of California. SE Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) TI ENVIRONMENTAL ENERGY AU Science Activities for the Visually Impaired/Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) AF Lawrence Hall of Science Center for Multisensory Learning, University of California ; U.S. Office of Education, Department of Health, Education, and Welfare PU University of California, Lawrence Hall of Science Center for Multisensory Learning LO Berkeley, CA DP 1983 PG [36] IL b&w line drawings BI no Kit: \$107.00/61.00 April, 1988 PR Folio guide: \$5.00 RL 4,5,6,7 DS visual impairment ; physical handicaps ; learning disabilities ; elementary science methods ; energy ; solar energy ; sun ; wind power ; wind ; pinwheels : water ; temperature : thermometers : energy transfer AN The ENVIRONMENTAL ENERGY module contains four activities focusing on energy sources: Solar Water Heater, Sun Power, Blowin' in the Wind, and Wind Power. Students investigate the concepts of active and stored energy and experiment with energy transfer, as they set up simple solar water heaters in the schoolyard, then test the effects of varying size, color, or covering on water temperature. Pinwheels are used to compare the availability of wind power in various locations, and the amount of work that can be done by pinwheels of various sizes. The instructions are well-organized and supported by science information as well as techniques for offering successful experiences to learners of varied physical capabilities. A kit accompanies the module. TN 5 lessons, 30-90 minutes each

MT Kit from Lawrence Hall of Science

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NO 904
 DE April 6, 1988
 SU Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Carl F. Berger, et al.,
1971. ENERGY SOURCES. Chicago, IL: Rand McNally and Company.
 SE Science Curriculum Improvement Study (SCIS)
TI ENERGY SOURCES
AU Science Curriculum Improvement Study (SCIS)
 ; Berger, Carl F.
; Karplus, Robert
; Randle, Joan Coffman
; Thier, Herbert D.
; Webb, Sylvester
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Rand McNally and Company
LO Chicago, IL 60680
DP 1971
PG 128
IL b&w line drawings, photographs, charts and diagrams
IS 528-90142-7
LC 34802
AL 5
RL 5
DS scientific method
; scientific process
; elementary science methods
; energy source
; energy receiver
; energy transfer
; energy chain
AN The title and topic of this guide is ENERGY SOURCES. The students
are involved in activities to help them understand the major concepts
of variables, energy transfer, energy sources, and energy receivers.
The pupils use rolling and colliding spheres, paper airplanes,
thermometers, warm and cold water, ice, and rubber stopper shooters to
help them discover that motion and changes in temperature are evidence
of energy transfer. The final section of this guide offers projects
for individuals or groups. A kit is available from Delta.
TN There are 21 lessons 40-45 minutes each
MT Kit from Delta
OR in library
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NO 905
DE April 6, 1988
SU Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy
et al., 1978. ENERGY SOURCES. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study II (SCIS II)
TI ENERGY SOURCES
AU Science Curriculum Improvement Study II (SCIS II)
; Paldy, Lester G.
; Amburgry, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1978
PG 143
IL b&w line drawings, charts, graphs, diagrams
IS 0-8339-2502-4
LC none
AL 5
RL 5
DS scientific method
; scientific process
; elementary science methods
; energy source
; energy receiver
; energy transfer
; energy chain
AN The title and topic of this guide is ENERGY SOURCES. The students
are involved in activities to help them understand the major concepts
of variables, energy transfer, energy sources, and energy receivers.
The pupils use rolling and colliding spheres, paper airplanes,
thermometers, warm and cold water, ice, and rubber stopper shooters to
help them discover that motion and changes in temperature are evidence
of energy transfer. The final section of this guide offers projects
for individuals or groups. A kit is available from Delta.
TN There are 51 lessons 20-30 minutes each
MT Kit from Delta
OR in library
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NO 906
DE April 6, 1988
SU Physical
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier et
al., 1985. ENERGY SOURCES. Nashua, NH: Delta Education. Inc.
SE Science Curriculum Improvement Study (SCIIS/85)
TI ENERGY SOURCES
AU Science Curriculum Improvement Study (SCIIS/85)
; Thier, Herbert D.
; Karplus, Robert
: Knott, Robert
; Lawson, Chester A.
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
 ; National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG
IL b&w line drawings, photographs, charts, graphs, diagrams
IS 0-87504-409-3
LC GUI409
AL 5
RL 5
DS scientific method
; scientific process
; elementary science methods
; energy source
; energy receiver
; energy transfer
; energy chain
; solar energy
AN The ENERGY SOURCES (SCIIS/85) guide has a new section of activities
for the students involving solar energy transfer. The pupils use black
and white trays filled with water, thermometers, and a variety of
insulating materials to experiment with solar energy transfer. Five
evaluation activities are added in an appendix, and a supplement has
been added to the guide that simplifies the lesson overview. A kit is
available from Delta.
TN There are 19 lessons 40-45 minutes each
MT Kit from Delta
OR in library
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NO 912
   April 6, 1988
  Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Herbert D. Thier et
al., 1985. SUBSYSTEMS AND VARIABLES. Nashua, NH: Delta Education,
SE Science Curriculum Improvement Study (SCIIS/85)
TI SUBSYSTEMS AND VARIABLES
AU Science Curriculum Improvement Study (SCIIS/85)
; Thier, Herbert D.
; Karplus, Robert
; Knott, Robert
; Lawson, Chester A.
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG 142
IL baw line drawings, photographs, charts, graphs, diagrams
IS 0-87504-405-0
LC GUI405
AL 3
RL 3
DS scientific method
; scientific process
; elementary science methods
; subsystems
: solutions
; evaporation
; histograms
; variables
AN The lessons and organization of SUBSYSTEMS AND VARIABLES in SCIIS/85
is similar to SCIS and SCIS II. In this version a section about
evaluation has been added. A supplement that simplifies each lesson
plan is provided.
TN There are 19 lessons 30-35 minutes each
MT Kit from Delta
OR in library
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NO 913
   April 6, 1988
   Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Carl F. Berger, et al.,
1971. MODELS: ELECTRIC AND MAGNETIC INTERACTIONS. Chicago, IL: Rand
McNally and Company.
SE Science Curriculum Improvement Study (SCIS)
TI MODELS: ELECTRIC AND MAGNETIC INTERACTIONS
AU Science Curriculum Improvement Study (SCIS)
; Berger, Carl F.
; Bunshoft, Sylvia
; Karplus, Robert
; Randle, Joan Coffman
AF Lawrence Hall of Science, University of California, Berkeley
; National Science Foundation
PU Rand McNally and Company
LO Chicago, IL 60680
DP 1971
PG 112
IL b&w line drawings, photographs, graphs, charts and diagrams
BI no
IS 90-2850T
LC
AL 6
RL 6
DS scientific method
: scientific process
; elementary science methods
; scientific models
; magnetic field concept
; electricity
; magnetism
; electrical circuits
AN The topic and name of this unit is MODELS: ELECTRIC AND MAGNETIC
INTERACTIONS. Electricity and magnetism are used for investigation.
Students begin by reviewing circuit concepts with the use of light
bulbs, batteries, magnets, and compasses. The children use circuit
puzzles and mystery boxes in testing to determine a type of model. The
phenomenon of magnetic fields is explored by using compasses and iron
filings. The students learn to interpret and draw electric circuits.
A final section of projects for individuals or teams is used to help
them design their own experiments. A kit is available from Delta.
TN There are 19 lessons 45-50 minutes each
MT Kit from Delta
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NO 914
DE April 6, 1988
 U Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study II (SCIS II), Lester G. Paldy
et al., 1974. MODELING SYSTEMS. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study II (SCIS II)
TI MODELING SYSTEMS
AU Science Curriculum Improvement Study II (SCIS II)
; Paldy, Lester G.
; Amburgry, Leonard L.
; Collea, Francis
; Cooper, Richard
; Maxwell, Donald E.
; Riley, Joseph W.
AF Lawrence Hall of Science, University of California, Berkeley
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1974
PG 153
IL b&w line drawings, graphs, charts, diagrams
BI
IS 0-8339-2602-0
LC
AL 6
RL 6
DS scientific method
; scientific process
; elementary science methods
; magnetism
; electricity
; energy interaction
: electrical circuits
: barometer
: weather
; evaporation
; condensation
AN In MODELING SYSTEMS (SCIS II), there are two changes from the
previous teacher's guide. First, the section on projects has been
dropped and secondly a unit on modeling the atmosphere system has been
added. Students are involved in determining properties of air,
experimenting with evaporation and condensation, and modeling the
weather system. The teacher's notes are very helpful in understanding
the difficult concepts of electricity, magnetism, and atmosphere. A
kit is available from Delta.
TN There are 51 lessons 25-30 minutes each
MT Kit from Delta
OR in library
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NO 915
DE April 6, 1988
SU Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Robert Karplus, et
al., 1985. SCIENTIFIC THEORIES. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study (SCIIS/85)
TI SCIENTIFIC THEORIES
AU Science Curriculum Improvement Study (SCIIS/85)
; Karplus, Robert
; Thier, Herbert D.
; Knott, Robert
; Lawson, Chester A.
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG 158
IL b&w line drawings, photographs, charts, diagrams
BI no
IS 0-87504-411-5
LC GUI411
AL 6
RL 6
DS scientific method
; scientific process
; elementary science methods
; scientific theories
: color
; magnetic fields
; magnetism
; electricity
; energy
; circuits
; light rays
AN Two sections have been added to the SCIIS/85 guide and the
topic/title has been changed from MODELING SYSTEMS to SCIENTIFIC
THEORIES. One new section studies colored light by having the students
work with prisms, colored plastic, and light sources. Another new
section has the children using light sources, mirrors, and lenses in
order to explore images. A supplement is added that simplifies each
lesson plan. A kit is available from Delta.
TN There are 21 lessons 45-50 minutes each
MT Kit from Delta
'OR in library
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NO 918
DE April 6, 1988
SU Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIIS/85), Robert Karplus, et
al., 1985. RELATIVE POSITION AND MOTION. Nashua, NH: Delta
Education, Inc.
SE Science Curriculum Improvement Study (SCIIS/85)
TI RELATIVE POSITION AND MOTION
AU Science Curriculum Improvement Study (SCIIS/85)
; Karplus, Robert
; Thier, Herbert D.
; Lawson, Chester A.
; Knott, Robert
; Montgomery, Marshall
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1985
PG 154
IL baw line drawings, photographs, graphs, grids, charts, diagrams
IS 0-87504-407-7
LC GUI407
AL 4
RL 4
DS scientific method
; scientific process
; elementary science methods
; scientific theories
; relative position
; reference objects
; relative motion
; polar coordinates
; mapping
; shadows
; rectangular coordinates
; astronomy
AN The teacher's guide, RELATIVE POSITION AND MOTION, SCIIS/85, is very
similar to the previous SCIS and SCIS II guides with a few noted
exceptions. An initial lesson uses paper airplanes to review the terms
object, property, interaction, system, and variable. the appendices
"process evaluation" and "attitude in science" offer the opportunity to
add new dimensions to the science program. Lastly, a supplement is
provided that simplifies the lesson plans. It does not contain
background information and should be used along with the basic
materials.
TN There are 21 lessons 35-40 minutes each
MT Kit from Delta
OR in library
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NO 919
DE April 6, 1988
SU Physical Science
TY Teacher's Guide
CI Science Curriculum Improvement Study (SCIS), Robert Karplus, et al.,
1970. INTERACTION AND SYSTEMS. Nashua, NH: Delta Education, Inc.
SE Science Curriculum Improvement Study (SCIS)
TI INTERACTION AND SYSTEMS
AU Science Curriculum Improvement Study (SCIS)
; Karplus, Robert
; Randle, Joan Coffman
AF Lawrence Hall of Science, University of California, Berkeley
: National Science Foundation
PU Delta Education, Inc.
LO Nashua, NH 03061
DP 1970
PG 112
IL b&w line drawings, photographs, charts
IS 528-90112-5
LC
AL 2
RL 2
DS scientific method
; scientific process
; elementary science methods
; object interaction
: evidence of interaction
: chemical systems
: interaction
: pulleys
: magnetism
; electricity
; gears
AN In the unit INTERACTION AND SYSTEMS, children observe and interpret
evidence of interaction through the use of magnets, batteries, wires,
various chemicals, photographic paper, pulleys, ammonia, bells, and
their own senses. Student's begin to develop record keeping skills by
drawing picture records of what they observe. Several teacher
demonstrations are used to help students observe and describe change.
A kit is available from Delta.
TN There are 20 lessons 25-30 minutes each
MT Kit from Delta
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NO 923
DE April 6, 1988
SU Graphing
; Counting
; Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Robin
Adair, et al., 1985. GLIDE INTO WINTER WITH MATH AND SCIENCE. Fresno,
CA: Fresno Pacific College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI GLIDE INTO WINTER WITH MATH AND SCIENCE
AU Activities to Intergrate Mathematics and Science (AIMS)
; Adair, Robin
; Ewing, Jill
; Faircloth, Shirley
; Nikoghosian, Janice
; Peterson, Cynthia
; Smith, Darlene
; Wiebe, Sheila
AF Fresno Pacific College
; National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1985
PG 73
IL b&w line drawings
BI no
IS
LC
AL K,1
RL K,1
DS science process skills
; integrated curriculum
; graphing
; counting
: weather
; holidays
: measurement
; human body
; static electricity
; crystals
; nutrition
AN GLIDE INTO WINTER WITH MATH AND SCIENCE contains 16 investigations
using graphing skills as children observe, interpret and record data
provided by the happenings of the winter season. Topics include:
weather, static electricity, growing crystals, nutrition and the human
body. Each investigation has a specific lesson plan including
materials and time needed, background information, procedures,
discussion questions and extensions. Several reproducible student
pages can be found after each lesson plan.
TN 16 investigations, 15-30 minutes each
MT locally available
RE SPRING INTO MATH AND SCIENCE
; FALL INTO MATH AND SCIENCE
OR in library
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NO 924
DE April 6, 1988
SU Graphing
: Measurement
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Robin
Adair, et al., 1984. SPRING INTO MATH AND SCIENCE. Fresno, CA: Fresno
Pacific College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI SPRING INTO MATH AND SCIENCE
AU Activities to Intergrate Mathematics and Science (AIMS)
; Adair, Robin
; Ewing, Jill
; Faircloth, Shirley
; Nikoghosian, Janice
; Peterson, Cynthia
; Smith, Darlene
: Wiebe, Sheila
AF Fresno Pacific College
: National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1984
PG 64
IL b&w line drawings
BI no
IS
LC
AL K,1
RL K,1
DS science process skills
: integrated curriculum
; graphing
: counting
; water
; holidays
; measurement
; solar energy
; rainbows
; cooking
; chemistry
AN SPRING INTO MATH AND SCIENCE contains 15 investigations using the
events of the spring season to provide practice in observing,
measuring, and recording data. Each investigation has a specific
lesson plan including materials and time needed, background
information, procedures, discussion questions and extensions.
reproducible student pages can be found after each lesson plan.
children make graphs related to topics such as: water, solar energy,
rainbows, holiday cooking, and chemical reactions.
TN 15 investigations, 15-30 minutes each
MT locally available
RE GLIDE INTO WINTER WITH MATH AND SCIENCE
; FALL INTO MATH AND SCIENCE
OR in library
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NO 925
DE April 6, 1988
SU Graphing
; Estimating
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Cherie
Ginocchio, et al., 1984. SEASONING MATH AND SCIENCE FALL AND WINTER.
Fresno, CA: Fresno Pacific College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI SEASONING MATH AND SCIENCE FALL AND WINTER
AU Activities to Intergrate Mathematics and Science (AIMS)
; Ginocchio, Cherie
; Haggard, Ruth
; Jenkins, Sherry
; Newton, Nancy
; Olson, Betsy
: Roberts-Worley, Wendy
AF Fresno Pacific College
; National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1984
PG 70
IL b&w line drawings
BI no
AL 2
RL 2
DS science process skills
; integrated curriculum
; graphing
: counting
; estimation
; measurement
; weather
: holidays
: seeds
: foods
; leaves
; trees
; color
; light
; shapes
: surface tension
; ecology
AN SEASONING MATH AND SCIENCE FALL AND WINTER is most appropriate for
the first half of the school year. Book 1 includes such topics as
holidays, plants, weather, color and light. The teacher's guide
contains 22 investigations each with specific lesson plans that
include: materials and time needed, background information,
procedures, discussion questions and extensions. Several reproducible
student pages accompany each investigation. After gathering and
recording data the children are involved in a variety of graphing
activities.
TN 22 investigations, 15-30 minutes each
MT locally available
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RE AIMS units at appropriate grade levels OR in library

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NO 926
 DE April 6, 1988
 SU Graphing
 : Measurement
 ; Science Process Skills
 TY Teacher's Guide
 CI Activities to Intergrate Mathematics and Science (AIMS), Cherie
 Ginocchio, et al., 1986. SEASONING MATH AND SCIENCE SPRING AND SUMMER.
 Fresno, CA: AIMS Education Foundation.
 SE Activities to Intergrate Mathematics and Science (AIMS)
 TI SEASONING MATH AND SCIENCE SPRING AND SUMMER
 AU Activities to Intergrate Mathematics and Science (AIMS)
; Ginocchio, Cherie
 ; Haggard, Ruth
 ; Jenkins, Sherry
 ; Newton, Nancy
 ; Olson, Betsy
 ; Roberts-Worley, Wendy
 AF Fresno Pacific College
 ; National Science Foundation
 PU AIMS Education Foundation
 LO PO Box 7766, Fresno, CA 93747
 DP 1986
 PG 86
 IL b&w line drawings
 BI no
 IS
 LC
 AL 2
 RL 2
 DS science process skills
 ; integrated curriculum
 ; graphing
 : counting
 : estimation
 ; measurement
 : seeds
 ; biology
 : earth science
 : physical science
 ; plants
 ; insects
 : dinosaurs
 ; shadows
 AN SEASONING MATH AND SCIENCE SPRING AND SUMMER is most appropriate for
 the second half of the school year. Book 2 includes three main units:
 Life Sciences, Earth-Space Sciences, and Physical Sciences.
 investigations all relate to February through April holidays. The
 teacher's guide contains 22 investigations each with specific lesson
 plans that include: materials and time needed, background information,
 procedures, discussion questions and extensions. Several reporducible
 student pages accompany each investigation. The children use
 estimation, graphing and problem solving in real life situations.
 TN 22 investigations, 30 minutes each
 MT locally available
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RE AIMS units at appropriate grade levels

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NO 927
DE April 6, 1988
SU Whole Number Operations
; Graphing
; Estimating
: Science Process Skills
: Human Body
: Foods
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Barry
Courtney, et al., 1984. JAW BREAKERS AND HEART THUMPERS. Fresno, CA:
Fresno Pacific College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI JAW BREAKERS AND HEART THUMPERS
AU Activities to Intergrate Mathematics and Science (AIMS)
; Courtney, Barry
; Crossley, Helen
; Dixon, Susan
; Hill, Loretta
; House, Kathleen
; Rudig, Anne
; Wiebe, Ann
; Wiens, Gina
; Williams, Nancy
AF Fresno Pacific College
: National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1984
PG 63
IL b&w line drawings
BI no
IS
LC
AL 3,4
RL 3,4
DS science process skills
; integrated curriculum
; graphing
; measurement
; whole number operations
; human body
; foods
; averaging
; nutrition
AN In JAW BREAKERS AND HEART THUMPERS there are eighteen investigations
relating to the human body and foods. Each investigation contains a
specific lesson plan including materials and time needed, background
information, procedures, discussion questions and extensions. Several
reproducible student pages accompany each investigation making it
convenient for students to gather and record data for graphing.
children are involved in activities such as measuring heart rates,
observing patterns in fingerprints, and calculating amounts of sugar in
bubble gum.
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TN 18 investigations, 30-45 minutes each

MT locally available

RE AIMS units at appropriate grade levels OR in library

NO 928 DE April 6, 1988 SU Estimating ; Geometry : Measurement : Structures ; Science Process Skills TY Teacher's Guide CI Activities to Intergrate Mathematics and Science (AIMS), Barry Courtney, et al., 1986. HARD HATTING IN A GEO-WORLD. Fresno, CA: AIMS Education Foundation. SE Activities to Intergrate Mathematics and Science (AIMS) TI HARD HATTING IN A GEO-WORLD AU Activities to Intergrate Mathematics and Science (AIMS) ; Courtney, Barry ; Haracz, Geraldine ; Crossley, Helen ; Hill, Loretta ; Dixon, Susan ; Wiebe, Ann ; Williams, Nancy AF Fresno Pacific College ; National Science Foundation PU AIMS Education Foundation LO PO Box 7766, Fresno, CA 93747 DP 1986 PG 79 IL b&w line drawings BI no IS LC AL 3,4 RL 3.4 DS science process skills ; integrated curriculum ; graphing ; measurement ; whole number operations ; estimation ; structures : geometry ; astronomy : architecture ; patterns AN HARD HATTING IN A GEO-WORLD includes twenty-five investigations relating to geometry, structures, and measurement. Each investigation contains a specific lesson plan including materials and time needed, background information, procedures, discussion questions and extensions. Several reproducible student pages accompany each investigation. The students are involved in many activities involving measurement as they build and test structures and joints, observe and classify geometric shapes and discover the mysteries surrounding skyscrapers and bridges. TN 25 investigations, 30-45 minutes each MT locally available RE AIMS units at appropriate grade levels

OR in library

```
NO 929
DE April 6, 1988
SU Physical Science
; Measurement
; Estimating
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Sean
Greene, et al., 1985. POPPING WITH POWER. Fresno, CA: Fresno Pacific
College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI POPPING WITH POWER
AU Activities to Intergrate Mathematics and Science (AIMS)
; Greene, Sean
; Crossley, Helen
; Dixon, Susan
; Hill, Loretta
; Rayfield, Helen
; Rudig, Anne
; Bland, Carol
; Wiens, Gina
; Williams, Nancy
AF Fresno Pacific College
; National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1985
PG 66
IL b&w line drawings
BI no
IS
LC
AL 3,4
RL 3,4
DS science process skills
; integrated curriculum
: measurement
; estimation
; physical science
; simple machines
; compound machines
; magnets
; pendulums
; energy
; insulation
; temperature
; energy conservation
; kinetic energy
AN POPPING WITH POWER includes twenty-one investigations relating to
physical science. Each investigation contains a specific lesson plan
including materials and time needed, background information,
procedures, discussion questions and extensions. Several reproducible
student pages are provided with each investigation. The students are
involved in such activities as operating machines to simplify work,
swinging and timing pendulums and bouncing balls, and observing color
effects on temperature.
```

TN 21 investigations, 30-45 minutes each MT locally available RE AIMS units at appropriate grade levels OR in library

```
NO 930
DE April 6, 1988
SU Earth Science
; Graphing
: Measurement
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Barry
Courtney, et al., 1986. OVERHEAD AND UNDERFOOT. Fresno, CA: AIMS
Education Foundation.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI OVERHEAD AND UNDERFOOT
AU Activities to Intergrate Mathematics and Science (AIMS)
; Courtney, Barry
: Wiebe, Ann
; Dixon, Susan
; Hill, Loretta
; Rayfield, Helen
; Rudig, Anne
; Bland, Carol
; Wiens, Gina
; Williams, Nancy
; House, Kathleen
AF Fresno Pacific College
: National Science Foundation
PU AIMS Education Foundation
LO PO Box 7766, Fresno, CA 93747
DP 1986
PG 56
IL b&w line drawings
BI no
IS
LC
AL 3,4
RL 3,4
DS science process skills
; integrated curriculum
: measurement
: estimation
; graphing
; whole number operations
; weather
; plants
; animals
; pollution
: soil
; rocks
; conservation
; geology
AN OVERHEAD AND UNDERFOOT includes fifteen investigations related to
the natural environment. Topics covered are: weather, plants, soil,
geology and conservation. Each investigation contains a specific
lesson plan including materials and time needed, background
information, procedures, discussion questions and extensions. Several
reproducible student pages are provided with each investigation. The
students are involved in activities such as: making peanut butter and
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MT locally available RE AIMS units at appropriate grade levels OR in library

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NO 934
DE April 6, 1988
SU Percents
: Foods
; Estimating
: Computation
; Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Alberta M.
Alfving, et al., 1987. FUN WITH FOODS. Fresno, CA: AIMS Education
Foundation.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI FUN WITH FOODS
AU Activities to Intergrate Mathematics and Science (AIMS)
; Alfving, Alberta M.
; Eitzen, C. Lloyd
; Hyman, Joanne
; Patron, Rose Lee
; Holve, Helen
; Nelson, Philip
AF Fresno Pacific College
: National Science Foundation
PU AIMS Education Foundation
LO PO Box 7766, Fresno, CA 93747
DP 1987
PG 74
IL b&w line drawings
BI no
IS
LC
AL 5,6,7,8
RL 5,6,7,8
DS science process skills
; integrated curriculum
: measurement
; estimation
; foods
; variables
; nutrition
; seeds
: emulsions
: acids
; bases
; change
; percent
AN FUN WITH FOODS contains twenty-five investigations that use food and
equipment found in kitchens, supermarkets, or school classrooms to
teach and reinforce skills and processes in math and science. Each
investigation contains a specific lesson plan including materials and
time needed, background information, procedures, discussion questions
and extensions. Several reproducible student pages are provided with
each investigation. The students are involved in activities such as:
determining the edible part of an orange by volume, analyzing cafeteria
lunches, discovering mayonnaise is an emulsion, and finding fractions
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TN 25 investigations, 45-60 minutes each

in fondue.

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NO 935
DE April 6, 1988
SU Physical Science
: Division
: Measurement
; Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Mike
McKibban, et al., 1982. FLOATERS AND SINKERS SOLUTIONS FOR MATH AND
SCIENCE. Fresno, CA: Fresno Pacific College-Project AIMS.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI FLOATERS AND SINKERS SOLUTIONS FOR MATH AND SCIENCE
AU Activities to Intergrate Mathematics and Science (AIMS)
; McKibban, Mike
; Laidlaw, Walt
; Landon, Kathleen
; Lile, David
AF Fresno Pacific College
; National Science Foundation
PU Fresno Pacific College-Project AIMS
LO 1717 S. Chestnut Avenue, Fresno, CA 93702
DP 1982
PG 58
IL b&w line drawings
BI no
IS
LC
AL 5,6,7,8
RL 5,6,7,8
DS science process skills
; integrated curriculum
; physical science
; density
: volume
; floaters
: sinkers
; clay boats
; water
; surface area
: division
AN FLOATERS AND SINKERS SOLUTIONS FOR MATH AND SCIENCE contains
twenty-six investigations that demonstrate the concept of density.
Volume is calculated and division is the basic math skill used. Each
investigation contains a specific lesson plan including materials and
time needed, background information, procedures, discussion questions
and extensions. Several reproducible student pages are provided with
each investigation. Students learn different methods of calculating the
volume of spheres. They will explore the density of water, salt water
and rectangular shaped wooden prisms. They also compare the volume of
cylinders and gereralize about surface area and cargo capacity.
TN 26 investigations, 45-60 minutes each
MT locally available
RE AIMS units at appropriate grade levels
OR in library
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NO 936
 DE April 6, 1988
 SU Graphing
 ; Earth Science
 ; Measurement
 ; Science Process Skills
 TY Teacher's Guide
 CI Activities to Intergrate Mathematics and Science (AIMS), Sheldon
 Erickson, et al., 1986. DOWN TO EARTH, SOLUTIONS FOR MATH AND SCIENCE.
 Fresno, CA: AIMS Education Foundation.
 SE Activities to Intergrate Mathematics and Science (AIMS)
 TI DOWN TO EARTH, SOLUTIONS FOR MATH AND SCIENCE
. AU Activities to Intergrate Mathematics and Science (AIMS)
 ; Erickson, Sheldon
 ; Gregg, David
 ; Helling, Frank
 ; King, Morris W.
 ; Starkweather, Jeri
AF Fresno Pacific College
 ; National Science Foundation
 PU AIMS Education Foundation
 LO PO Box 7766, Fresno, CA 93747
DP 1986
 PG 68
 IL b&w line drawings
BI no
 IS
LC
AL 5,6,7,8
RL 5,6,7,8
DS science process skills
 ; integrated curriculum
 : earth science
 ; temperature
 ; mapping
 ; geology
 ; oceanography
 ; meteorology
 ; weather
 ; rocks
 AN DOWN TO EARTH, SOLUTIONS FOR MATH AND SCIENCE contains fifteen
 investigations about earth science topics such as geology, oceanography
 and meteorology. Each investigation contains a specific lesson plan
 including materials and time needed, background information,
 procedures, discussion questions and extensions. Several reproducible
 student pages are provided with each investigation. The students
 interpret information and generalize as they study evaporation rates,
 daily weather changes, mining techniques, and underwater terrain.
 TN 15 investigations, 45-60 minutes each
MT locally available
RE AIMS units at appropriate grade levels
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OR in library

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NO 937
DE April 6, 1988
   Environmental Studies
 Whole Number Computation
; Graphing
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Norris
Beakes, et al., 1986. OUR WONDERFUL WORLD, SOLUTIONS FOR MATH AND
SCIENCE. Fresno, CA: AIMS Education Foundation.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI OUR WONDERFUL WORLD, SOLUTIONS FOR MATH AND SCIENCE
AU. Activities to Intergrate Mathematics and Science (AIMS)
: Beakes, Norris
: Beck, Janet
; Deruiter, Henry Richard
; Dewey, John
; Freeman, Thomas L.
AF Fresno Pacific College
: National Science Foundation
PU AIMS Education Foundation
LO PO Box 7766, Fresno, CA 93747
DP 1986
PG 66
IL b&w line drawings
BI no
IS
LC
AL 5,6,7,8
RL 5,6,7,8
DS science process skills
; integrated curriculum
: measurement
; whole number operations
; graphing
; fractions
: averaging
: environmental studies
; air
: water
: plants
; soil
: animals
; insects
AN OUR WONDERFUL WORLD, SOLUTIONS FOR MATH AND SCIENCE contains
nineteen sequenced investigations in environmental studies covering the
following topics: air, water, transportation, soil, plants, animals,
insects. Each investigation contains a specific lesson plan including
materials and time needed, background information, procedures,
discussion questions and extensions. Several reproducible student
pages are provided with each investigation. The students are involved
in activities such as analyzing volume of snow, comparing habitats,
exploring natural selection and camouflage, and testing clothes as
insulators.
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TN 19 investigations, 45-60 minutes each

MT locally available

RE AIMS units at appropriate grade levels OR in library

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NO 938
   April 6, 1988
   Geometry
: Percent
: Measurement
: Science Process Skills
TY Teacher's Guide
CI Activities to Intergrate Mathematics and Science (AIMS), Judith A.
Hillen, et al., 1986. PIECES AND PATTERNS, A PATCHWORK IN MATH AND
SCIENCE. Fresno, CA: AIMS Education Foundation.
SE Activities to Intergrate Mathematics and Science (AIMS)
TI PIECES AND PATTERNS, A PATCHWORK IN MATH AND SCIENCE
AU Activities to Intergrate Mathematics and Science (AIMS)
: Hillen, Judith A.
AF Fresno Pacific College
: National Science Foundation
PU AIMS Education Foundation
LO PO Box 7766, Fresno, CA 93747
DP 1986
PG 91
IL b&w line drawings
BI no
IS
LC
AL 5,6,7,8,9
RL 5,6,7,8,9
DS science process skills
; integrated curriculum
: measurement
; whole number operations
; graphing
: fractions
; geometry
: physical science
: earth science
; trutle graphics
; computers
; kinetic energy
; simple machines
AN PIECES AND PATTERNS, A PATCHWORK IN MATH AND SCIENCE contains
nineteen sequenced investigations on a variety of topics such as:
probability and statistics, and turtle, graphics and geometry. Each
investigation contains a specific lesson plan including materials and
time needed, background information, procedures, discussion questions
and extensions. Several reproducible student pages are provided with
each investigation. The students are involved in range of activities
from classifying jelly beans and recording data to using Hot Wheels to
generalize about kinetic energy, inclined planes and friction.
TN 19 investigations, 45-60 minutes each
MT locally available
RE AIMS units at appropriate grade levels
OR in library
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NO 1150
 DE March 17, 1988
 SU Biology
 ; Health
 TY Activity Packet
 CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
 et al., 1980. ACTION/REACTION. Northbrook, IL: Hubbard.
 SE Health Activities Project (HAP)
 TI ACTION/REACTION
 AU Health Activities Project (Lawrence Hall of Science)
 ; Buller, David
.; Carter, Lynne
 ; Gipsman, Sandra
 ; Jacobson, Mark
 : Lee, Rhona
 ; Schneider, Livingston
 AF Lawrence Hall of Science, University of California, Berkeley
 PU Hubbard
 LO PO Box 104, Northbrook, IL
 DP 1980
 PG [21]
 IL b&w photos and drawings
 BI no
 PR kit: $94.50 March, 1988
 AL 4,5,6,7,8
 DS biology
 ; daily living skills
 ; eye/hand coordination
 ; fitness
 ; health
 : health activities
 ; health education
 ; human biology
 ; human body
 ; hygiene
 ; neurology
 ; psychomotor skills
 : reaction time
 ; reflexes
 AN The ACTION/REACTION module contains three activity folios, entitled
 Reaction Time, Improving Reaction Time, and Let's Manipulate. In the
 first activity, students chart the speed of their responses to light,
 sound, and touch stimuli. They compare their responses to the
 different stimuli, and attempt to identify factors contributing to
 these results. In the second activity, students repeat the
 stimulus-response experiments for five consecutive days, seeking
 evidence of improved reaction time. They graph their results and
 compute percent improvements. In the final activity, students practice
 eye-hand coordination activities, collecting and comparing data to
 determine the effects of practice on performance. The module contains
 student data sheets, useful background information for the teacher, as
 well as suggestions for classroom management and follow-up activities.
 A materials kit accompanies the module.
 TN 15 sessions: 1 @ 45-60 minutes; 2 @ 30-35 minutes; 12 @ 15-20
 minutes
 MT kit from Hubbard
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LR in librari.

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NO 1151
DE March 17, 1988
SU Biology
; Health
TY Activity Packet
CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
et al., 1980. BALANCE IN MOVEMENT. Northbrook, IL: Hubbard.
SE Health Activities Project (HAP)
TI BALANCE IN MOVEMENT
AU Health Activities Project (Lawrence Hall of Science)
; Buller, David
; Carter, Lynne
; Gipsman, Sandra
; Jacobson, Mark
; Lee, Rhona
; Schneider, Livingston
AF Lawrence Hall of Science, University of California, Berkeley
PU Hubbard
LO PO Box 104, Northbrook, IL
DP 1980
PG [35]
IL b&w photos and drawings
PR kit: $72.50 March, 1988
AL 4,5,6,7,8
DS balance
; center of mass
; daily living skills
; fatigue
: fitness
; health
: health activities
; health education
; human biology
; human body
; hygiene
; stability
; vision
AN BALANCE IN MOVEMENT contains six sequential activity folios,
entitled Balance and Vision, Rope Walk, Stability in Movement,
Exploring Balance Boards, Balance Experiments, and Balance and Fatigue.
Students conduct experiments to determine how vision affects their
balance while standing still and while moving. They explore the
stability of different body positions, and then, standing on 'balance
boards', test their ability to balance under various circumstances:
with eyes fixed or moving, feet apart or together, arms free or folded,
before or after exertion. Emphasis is on collection and analysis of
data, and application to familiar situations. The module contains
helpful information and hints for classroom management, as well as
student data sheets. A kit accompanies the module.
TN 6 sessions: 5 @ 40-60 minutes, 1 @ 50-70 minutes
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MT kit from Hubbard OR in library

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NO 1152
 DE March 17, 1988
 SU Biology
 ; Health
 TY Activity Packet
 CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
 et al., 1980. BREATHING FITNESS. Noerthbrook, IL: Hubbard.
 SE Lawrence Hall of Science
 TI BREATHING FITNESS
 AU Health Activities Project
 : Buller, David
; Carter, Lynne
 ; Gipsman, Sandra
 ; Jacobson, Mark
 ; Lee, Rhona
 ; Schneider, Livingston
 AF Lawrence Hall of Science, University of California, Berkeley
 PU Hubbard
 LO PO Box 104, Northbrook, IL
 DP 1980
 PG [38]
 IL b&w photos and drawings
 PR kit: $69.95
 AL 4,5,6,7,8
 DS biology
 ; breathing
 ; carbon dioxide
 ; daily living skills
 ; exercise
 : exhale
 : fitness
 : health
 ; health activities
 : health education
 ; human biology
 ; human body
 ; hygiene
 ; inhale
 ; lungs
 ; oxygen
 ; respiration
 AN The BREATHING FITNESS module consist of six activity folios,
 entitled Exploring Breath Rates, Breath Recovery, Breath Control,
 Measuring Lung Volume, Measuring Breath Volume, and Gas Exchange.
 Students learn how to measure their breathing rates, investigate the
 relationship between lung volume and height, and conduct experiments on
 the effects of breathing styles, breath holding, exercise, and rest.
 They also measure relative amounts of carbon dioxide in air exhaled
 while at rest and after exercise. Emphasis is on collection and
 analysis of data, and application to familiar situations. There is
 extensive background information for teachers, with student data sheets
 and suggestions for classroom management.
 TN 14 sessions: 3 @ 10-15 minutes, 3 @ 20-30 minutes, 8 @ 40-60
 minutes.
 MT kit from Hubbard
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NO 1153 DE March 17, 1988 SU Biology ; Health TY Activity Packet CI Health Activities Project (Lawrence Hall of Science), Dave Buller, et al., 1980. CONSUMER HEALTH DECISIONS. Northbrook, IL: Hubbard. SE Lawrence Hall of Science (HAP) TI CONSUMER HEALTH DECISIONS AU Health Activities Project (Lawrence Hall of Science) ; Buller, David ; Carter, Lynne ; Gipsman, Sandra ; Jacobson, Mark ; Lee, Rhona ; Schneider, Livingston AF Lawrence Hall of Science, University of California, Berkeley PU Hubbard LO PO Box 104, Northbrook, IL DP 1980 PG [33] IL b&w photos and drawings AL 4,5,6,7,8 DS advertising ; biology ; consumer education ; decision making ; daily living skills : fitness ; health : health activities : health education ; health services ; human biology ; human body ; hygiene : judgement ; safety AN The CONSUMER HEALTH DECISIONS module contains four activity folios. Pages. Students conduct taste tests and analyze advertisements to consumer decisions. A team game provides practice in making safety-oriented decisions, and a scavenger hunt through the telephone book familiarizes children with the health and safety resources of

entitled Consumers' Choice, Madison Avenue, Puzzling it Out, and Yellow investigate the effects of information, advertising, and expectation on their local community. The activities focus on situations relevant to students' lives. There is extensive background information for teachers, with classroom management hints and student activity sheets. TN 8 sessions: 2 @ 15-30 miunutes, 3 @ 30-45 minutes, 3 @ 45-60 minutes MT kit from Hubbard OR in library

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NO 1154
DE March 17, 1988
SU Biology
: Health
TY Activity Packet
CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
et al., 1980. ENVIRONMENTAL HEALTH AND SAFETY. Northbrook, IL:
Hubbard.
SE Health Activities Project (HAP)
TI ENVIRONMENTAL HEALTH AND SAFETY
AU Health Activities Project (Lawrence Hall of Science)
; Buller, David
; Carter, Lynne
; Gipsman, Sandra
; Jacobson, Mark
; Lee, Rhona
; Schneider, Livingston
AF Lawrence Hall of Science, University of California, Berkeley
PU Hubbard
LO PO Box 104, Northbrook, IL
DP 1980
PG [33]
IL b&w photos and drawings
AL 4,5,6,7,8
DS accident prevention
; air
; air pollution
; air quality
; biology
: breathing
; contagious disease
; daily living skills
; depth perception
: disease
: disease control
; epidemic
; fitness
; health
; health activities
: health education
; human biology
; human body
; hygiene
; immunization
; injuries
: lungs
; perception
; peripheral vision
; pollution
; respiration
; safety
: school safety
; traffic safety
; vision
AN The ENVIRONMENTAL HEALTH AND SAFETY module contains five activity
folios, entitled Fallout, Epidemic, Turn Around, Turning Response and
```

Age, and Testing Depth Perception. Students investigate the presence of pollutants in the air and conduct simulations to trace the spread of 'disease' (non-toxic flourescent paste) by direct and indirect contact. Tests of depth perception and experiments with turning responses offer applications to activities such as riding a bicycle or driving a car. Data collection and analysis are emphasized, and hypotheses encouraged. The module includes student data sheets and background information for teachers, as well as specific suggestions for classroom management. A kit accompanies the module.

TN 11 sessions: 1 @ 10-15 minutes, 5 @ 20-30 minutes, 5 @ 40-60 minutes

MT kit from Hubbard OR in library

```
NO 1155
DE March 17, 1988
SU Biology
; Health
TY Activity Packet
CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
et al., 1980. FLEXIBILITY AND STRENGTH. Northbrook, IL: Hubbard.
SE Health Activities Project (HAP)
TI FLEXIBILITY AND STRENGTH
AU Health Activities Project (Lawrence Hall of Science)
; Buller, David
; Carter, Lynne
; Gipsman, Sandra
; Jacobson, Mark
; Lee, Rhona
; Schneider, Livingston
AF Lawrence Hall of Science, University of California, Berkeley
PU Hubbard
LO PO Box 104, Northbrook, IL
DP 1980
PG [31]
IL b&w photos and drawings
PR kit: $89.50
AL 4,5,6,7,8
DS biology
; daily living skills
; exercise
; fitness
; flexibility
: health
; health activities
; health education
; human biology
; human body
; hygiene
; mobility
; strength
AN FLEXIBILITY AND STRENGTH consists of five activity folios entitled
Limber Up, Grip Strength, Up and Away, Splint Relay, and Stiff Joints.
Students conduct experiments that test their range of movement and grip
strength, and they assess the improvement effects of practice. They
investigate the relationship between their heights and the distances
they can jump vertically and horizontally. Wearing splints on various
joints, they learn the effects of limited mobility. Students are
encouraged to collect, analyze, and compare data, and to apply their
findings to familiar situations. Student data sheets are included, as
are complete classroom management instructions and background
information. A kit accompanies the module.
TN 11 sessions: 5 @ 10 minutes, 3 @ 40-50 minutes, 3 @ 50-60 minutes
MT kit from Hubbard
OR in library
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NO 1156
DE March 17, 1988
SU Biology
; Health
TY Activity Packet
CI Health Activities Project (Lawrence Hall of Science), David Buller,
et al., 1980. GROWTH TRENDS. Northbrook, IL: Hubbard.
SE Health Activities Project (HAP)
TI GROWTH TRENDS
AU Health Activities Project (Lawrence Hall of Science)
; Buller, David
; Carter, Lynne
; Gipsman, Sandra
; Jacobson, Mark
: Lee, Rhona
; Schneider, Livingston
AF Lawrence Hall of Science, University of California, Berkeley
PU Hubbard
LO PO Box 104, Northbrook, IL
DP 1980
PG [30]
IL b&w photos and drawings
PR kit: $74.95
AL 4,5,6,7,8
DS biology
; change
; child development
; development
; fitness
; growth
; health
: health activities
: health education
; human biology
; human body
; human development
; hygiene
; maturity
: measurement
AN GROWTH TRENDS contains four activity folios, entitled Equals. Size
and Age, The Way We Grow, and Maturity Perceptions. Students
investigate body proportions by taking measurements, then analyze their
data to discover growth trends among their classmates. They compare
their data to measurements of typical newborn infants, to determine how
proportions change with maturation. Discrepancies between physical
capability and permission to perform certain tasks (such as driving a
car) are examined and discussed. Data collection and analysis are
encouraged, with emphasis on teamwork and applicability to students'
lives. Background information for teachers and suggestions for
classroom management are included. A kit accompanies the module.
TN 7 sessions: 1 @ 30 minutes, 4 @ 40~50 minutes, 2 @ 50-60 minutes
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MT kit from Hubbard

OR in library

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NO 1157
 DE March 17, 1988
 SU Biology
 ; Health
 TY Activity Packet
 CI Health Activities Project (Lawrence Hall of Science), Dave Buller,
 et al., 1980. HEART FITNESS. Northbrook, IL: Hubbard.
 SE Health Activities Project (Lawrence Hall of Science)
 TI HEART FITNESS
 AU Health Activities Project (Lawrence Hall of Science)
 ; Buller, David
 ; Carter, Lynne
.; Gipsman, Sandra
 ; Jacobson, Mark
 ; Lee, Rhona
 : Schneider, Livingston
 AF Lawrence Hall of Science, University of California, Berkeley
 PU Hubbard
 LO PO Box 104, Northbrook, IL
 DP 1980
 PG [36]
 IL b&w photos and drawings
 PR kit: $38.50
 AL 4,5,6,7,8
 DS biology
 ; daily living skills
 ; exercise
 ; fitness
 : health
 ; health activities
 ; health education
 ; heart
 ; heartbeat
 ; heart rate
 ; human biology
 ; human body
 ; hygiene
 ; physical conditioning
 ; pulse
 ; pulse rate
 ; weight control
 AN HEART FITNESS consists of five activity folios, entitled Exploring
 Heartbeats, Exploring Pulse, Pulse Recovery, Shape Up, and Extra
 Weight. The students locate their hearts and their pulse points,
 listening to each and comparing data collected in various positions and
 states of activity. They investigate the relationship between
 heartbeats and pulse, test their pulse recovery rate after exercise,
 then develop a simple training program to improve recovery rate.
 Activities conducted with and without weighted backpacks illustrate the
 effect of extra weight on pulse rate. The collection and comparison of
 data engage students in careful examination of their exercise habits.
 The module contains student data sheets, extensive background
 information for teachers, and classroom management suggestions. A kit
 accompanies the module.
 TN 16 sessions: 6 @ 10-15 minutes, 2 @ 20-30 minutes, 2 @ 30-40
 minutes, 5 @ 40-50 minutes, 1 @ 50-60 minutes
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NO 1158 DE March 21, 1988 SU Biology ; Health TY Activity Packet CI Health Activities Project (Lawrence Hall of Science), Dave Buller, et al., 1980. NUTRITION/DENTAL HEALTH. Northbrook, IL: Hubbard. SE Health Activities Project (HAP) TI NUTRITION/DENTAL HEALTH AU Health Activities Project (Lawrence Hall of Science) ; Buller, David ; Carter, Lynne ; Gipsman, Sandra ; Jacobson, Mark ; Lee, Rhona ; Schneider, Livingston AF Lawrence Hall of Science, University of California, Berkeley LO PO Box 104, Northbrook, IL DP 1980 PG [46] IL b&w photos and drawings AL 4,5,6,7,8 DS biology ; cavities ; daily living skills ; dental health ; exercise ; fitness : health : health activities ; health education ; health risks ; human biology ; human body ; hygiene ; nutrition ; oral hygiene ; plaque ; snacks ; teeth : tooth decay ; weight control AN NUTRITION/DENTAL HEALTH consists of six activity folios entitled Jaws, Trouble Spots, Cavities, Slim Chance, Lunch Time, and Eating Awareness. Students make casts of their teeth and use them to investigate size, shape, and function. With the aid of a non-toxic dye, they locate tooth surfaces in their own mouths where plaque deposits can cause cavities, then test strategies for reducing plaque. Students investigate the nutritive value of foods, planning and scoring menus, and examining their snacking habits. A simulation game illustrates the ongoing conflict between tooth decay and oral hygiene, and a board game relates diet and exercise to healthy weight. The module emphasizes collection and analysis of data, and encourages extension of classroom activities to the home environment. There is

extensive background information for teachers, with student data sheets, and detailed suggestions for classroom management. A kit accompanies the module.

TN 12 sessions: 2 @ 20 minutes, 6 @ 30-45 minutes, 3 @ 45-60 minutes, 1 @ 60-90 minutes

MT kit from Hubbard

OR in library

NO 1159 DE March 21, 1988 SU Biology ; Health TY Activity Packet CI Health Activities Project (Lawrence Hall of Science), Dave Buller, et al., 1980. PERSONAL HEALTH DECISIONS. Northbrook, IL: Hubbard. SE Health Activities Project (HAP) TI PERSONAL HEALTH DECISIONS AU Health Activities Project (Lawrence Hall of Science) ; Buller, David ; Carter, Lynne ·; Gipsman, Sandra ; Jacobson, Mark ; Lee, Rhona ; Schneider, Livingston AF Lawrence Hall of Science, University of California, Berkeley PU Hubbard LO PO Box 104, Northbrook, IL DP 1980 PG [42] IL baw photos and drawings PR kit: \$63.50 AL 4,5,6,7,8 DS behavior modification ; biology ; daily living skills ; decision making ; habits : health : health activities : health education ; health risks ; human biology ; human body ; hygiene ; peer pressure : relaxation exercises ; safety ; smoking ; stress management AN The PERSONAL HEALTH DECISIONS module contains five activity folios, entitled Change a Habit, Habits Anonymous, On the Spot, Risky Business, and Stress Management. Students investigate the impact of individual and social behaviors on health. They identify habits they would like to break, or beneficial habits they would like to develop, keeping records of each and engaging in behavior modification techniques to reinforce change. Group games demonstrate how peer pressure affects individual actions, and how risk-taking can affect personal health. Students learn the impact of stress, and develop strategies for conscious relaxation in stressful situations. Student sheets are included in the module to facilitate collection and analysis of data. There are also complete instructions for classroom management, and

background information for teachers. A kit accompanies the module. TN 17 sessions: 8 @ 5-10 minutes, 1 @ 15-20 minutes, 2 @ 30-40 minutes,

1 @ 40-50 minutes, 5 @ 50-60 minutes

NO 1160 DE March 21, 1988 SU biology : Health TY Activity Packet CI Health Activities Project (Lawrence Hall of Science), and Dave Buller, et al., 1980. SIGHT AND SOUND. Northbrook, IL: Hubbard. SE Health Activities Project (HAP) TI SIGHT AND SOUND AU Health Activities Project (Lawrence Hall of Science) ; Buller, David ; Carter, Lynne ; Gipsman, Sandra ; Jacobson, Mark : Lee. Rhona : Schneider, Livingston AF Lawrence Hall of Science, University of California, Berkeley PU Hubbard LO PO Box 104, Northbrook, IL DP 1980 PG [34] IL b&w photos and drawings PR kit: \$44.95 AL 4,5,6,7,8DS adaptation ; biology ; depth perception ; ears ; eyes ; field of vision : health ; health activities ; health education : hearing ; human biology : human body ; lenses : light ; perception ; peripheral vision ; pinhole viewer ; sight : sound : vision AN SIGHT AND SOUND consists of six activity folios, entitled Mask Relay: Field of Vision; Animal Masks; Pinhole Viewer; Look, Listen, and Find; and Where Are You? Students conduct experiments and play games that define the field of vision and demonstrate its importance to daily life. Wearing masks of various types, students learn the effects of changed or reduced field of vision, and discover how, in the case of animals, it necessitates certain behavior. The students assemble pinhole viewers and use lenses to investigate how the amount of light and type of refraction affect images that reach the eye. Additional activities explore the use of visual cues for communication, and the

advantage of having two ears. Student data sheets and challenge cards are included in the module, as are background information for teachers

and instructions for classroom management. A kit accompanies the module.

TN 12 sessions: 2 @ 20-30 minutes, 5 @ 30-40, 5 @ 40-60 MT kit from Hubbard OR in library

NO 1161 DE March 21, 1988 SU Biology : Health TY Activity Packet CI Health Activities Project (Lawrence Hall of Science), Dave Buller, et al., 1980. SKIN TEMPERATURE. Northbrook, IL: Hubbard. SE Health Activities Project (HAP) TI SKIN TEMPERATURE AU Health Activities Project (Lawrence Hall of Science) ; Buller, David ; Carter, Lynne ; Gipsman, Sandra ; Jacobson, Mark ; Lee, Rhona ; Schneider, Livingston AF Lawrence Hall of Science, University of California, Berkeley PU Hubbard LO PO Box 104, Northbrook, IL DP 1980 PG [28] IL b&w photos and drawings PR kit: \$25.00 AL 4,5,6,7,8DS biology ; fitness ; health ; health activities ; health education ; heat : heat loss ; human biology ; human body ; hygiene ; insulation ; measurement ; perspiration : skin ; temperature : thermometer ; thermoregulation AN The SKIN TEMPERATURE module consists of four activity folios, entitled Map Your Temperature, Out in the Cold, The Great Heat Escape, and Heat Traps. Students make predictions about the skin temperature at various points on their bodies, then test their predictions by using strip thermometers to measure temperature at these sites. They conduct experiments to discover how long it takes skin temperature to recover from exposure to cold, and devise strategies for speeding recovery time. They also investigate heat loss by measuring temperature of the air around them, measure the effects of exercise on skin temperature, and test the insulation properties of different types of clothing fabric. The background information is very helpful for teachers, as are the classroom management suggestions and student data sheets. A kit accompanies the module. TN 6 sessions: 1 @ 10-20, 1 @ 20-30, 2 @ 30-40, 2 @ 50-60

MT kit from Hubbard